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ABSTRACT

The scope of this booklist includes books for students of average ability, for the mathematically talented, for the professional interests of mathematics teachers, and for those concerned with general mathematics at the junior college level. About 950 titles are listed, many with brief annotations. Starring of 200 titles indicates a priority choice as viewed by the author. Books are classified under topics which include popular reading, foundations of mathematics, history, recreations, mathematics content areas, professional books for teachers, mathematics for parents, dictionaries and handbooks, paperback series, and NCTM publications. Periodicals and journals are listed also. The appendix includes a directory of publishers. A related document is SE 015 978. (DT)

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Fifth Edition
Printed in the United States of America

Foreword

Despite certain trends in American high schools during the past few decades, mathematics is still the second most frequently studied academic subject—English, of course, ranking first. To be sure, mathematics is indispensable in preparation for science, engineering, technology, biology, medicine, and economics, to say nothing of vocations such as programming, data processing, and related fields. Nor is the contribution of mathematical experience to one's general education and cultural background to be taken lightly. Such considerations obviously call for an adequate mathematical library in every high school and junior college in the country—a goal somewhat closer than heretofore, but by no means as yet attained.

This is the more to be deplored in view of the wealth of mathematical literature that has appeared in the past twelve or fifteen years, truly an embarrassment of riches: books *on* mathematics, and books *about* mathematics; books about mathematicians; books for parents, for teachers, for general students, and for the mathematically talented; books on timely topics such as computers, automation, probability, game theory, symmetry, topology; books on the "new math" and on mathematical recreations. Today's books on mathematics need no longer fear competition from glamour books on rockets and missiles, outer space, oceanography, or science fiction.

The High School Mathematics Library is intended as a guide for librarians, students, mathematics teachers, educational administrators, and parents. Originally the list was concerned with the needs of students of average ability. While the present edition is still devoted to the interests of these students, its scope has frankly been enlarged to include the needs of mathematically talented and mature students and the professional interests of mathematics teachers and all who are concerned with general mathematics in our junior colleges. To raise standards and broaden horizons in this way is not only to be realistic but to anticipate future trends in mathematical education.

When the first edition of this library guide appeared in 1960, it was a modest list of some 400 titles. The present (fifth) edition lists nearly 950 titles, exclusive of supplementary publications, reprint pamphlets,

and paperback series issued by professional groups as well as by commercial publishers. Twenty-five percent of the entire list of some 950 titles were published during the years 1968-1971 inclusive; about two-thirds of the titles were published after 1962; and only 40-odd titles date back before 1950.

As time goes on, "modern math" is no longer quite so modern, and general interest in such topics as abstract algebra, contemporary geometry, computers, and programming is taken for granted. Already reflected in the fourth edition, this trend is even more obvious in the present instance. Moreover, this new edition includes many more professional books for teachers, both on the psychology of the learning process in mathematics and on methodology for elementary school teachers. This is as it should be, considering the current widespread interest along these lines, and despite the fact that the guide is called *The High School Mathematics Library*. In short, the school library should make such material readily accessible to teachers-in-service.

Manifestly it would be unrealistic to expect school libraries to place over 900 mathematics books on their shelves, even if departmental libraries were included. Hence, for schools with a limited budget, we have starred about 200 titles that, by one criterion or another, might claim priority over the other books. This rather arbitrary designation is not to be construed as meaning that the starred books are "better" or "more useful" than the unstarred books; it merely reflects the personal judgment of the compiler.

In any event, it is sincerely hoped that this checklist will prove useful in connection with mathematics clubs, contests, exhibits, projects, enrichment, guidance, and self-directed study. We trust that young people will be inspired to go to a library more often in search of a mathematics book.

W. L. S.

Boca Raton, Florida

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Note to the Reader

For references to less advanced materials, see the companion bibliography, *Mathematics Library—Elementary and Junior High School.*

Popular Reading; Expository Mathematics

Adler, Irving, ed. *Readings in Mathematics: Book 2*. Ginn, 1972, 188 pp., paper.

Andree, Josephine, ed. *Chips from the Mathematical Log*. Mu Alpha Theta, 1966, 96 pp., paper. Can be ordered through NCTM.

_____. *Lines from the O. U. Mathematics Letter*. 3 vols. Mu Alpha Theta, 1971, 106 pp., 42 pp., 102 pp., paper.

_____. *More Chips from the Mathematical Log*. Mu Alpha Theta, 1970, 87 pp., paper. Can be ordered through NCTM.

Bakst, Aaron. *Mathematics: Its Magic and Mastery*. 3d ed. Van Nostrand, 1967, 842 pp.

A comprehensive and readable exposition.

Beck, Anatole, Michael Bleicher, and Donald Crowe. *Excursions into Mathematics*. Worth, 1969, 489 pp.

Six independent essays on polyhedra, perfect numbers, area, a variety of geometries, mathematical games, numeration systems.

Bell, Eric T. *Mathematics: Queen and Servant of Science*. McGraw, 1951, 437 pp.

A revision and amplification of *The Queen of the Sciences* and *The Handmaiden of the Sciences*, skillfully rewritten into one volume.

Bergamini, David, and the Editors of *Life*. *Mathematics*. Life Science Library. Silver, 1963, 200 pp.

Distinctive pictorial material with accompanying text.

Berkeley, Edmund C. *A Guide to Mathematics for the Intelligent Non-Mathematician*. Simon, 1967, 352 pp.

Berlinghoff, William P. *Mathematics: The Art of Reason*. Heath, 1968, 260 pp.

Concise and stimulating; for mature readers.

Boehm, George A. W., and the Editors of *Fortune*. *The New World of Mathematics*. Dial, 1959, 128 pp., paper.

Essays on the nature of modern mathematics and on contemporary applied mathematics.

Bower, Julia W. *Introduction to Mathematical Thought*. Preliminary ed. Holden, 1965, 851 pp.

For the general college student and interested layman; stresses the imaginative nature of mathematics and its aesthetic appreciation.

Bradis, V. M., V. L. Minkovskii, and A. K. Kharcheva. *Lapses in Mathematical Reasoning*. Pergamon, 1963, 201 pp., paper.

An interesting collection of over eighty specific examples of false reasoning and paradoxes in arithmetic, algebra, geometry, and trigonometry.

Buchanan, Scott. *Poetry and Mathematics.* Lippincott, 1962, 156 pp., paper.

Reprint of a collection of unique essays on the nature of mathematics, first published in 1929 by one of the originators of the Great Books curriculum.

☆ Colerus, Egmont. *Mathematics for Everyman.* Emerson, 1957, 255 pp.

Committee on Support of Research in the Mathematical Sciences, ed. *The Mathematical Sciences: A Collection of Essays.* MIT, 1969, 271 pp.

☆ Courant, Richard, and Herbert Robbins. *What Is Mathematics? An Elementary Approach to Ideas and Methods.* Oxford, 1941, 521 pp.

For mature readers; excellent discussion of the number system, geometric constructions, postulational systems, number theory, topology.

☆ Court, Nathan A. *Mathematics in Fun and in Earnest.* Dial, 1958, 250 pp., cloth; Mentor, 1961, paper.

Stimulating and sober; by a warm, understanding writer.

Crowhurst, Norman. *Taking the Mysticism out of Mathematics.* Vantage, 1968, 177 pp.

☆ Dantzig, Tobias. *Number, the Language of Science.* 4th ed. Macmillan, 1967, 340 pp.

Excellent exposition of the concept of number; difficult reading in spots.

Davis, Anthony E. F. *Mathematics in General.* Heinemann, 1968, 147 pp.

Davis, Philip J., and William G. Chinn. *3.1416 and All That.* Simon, 1969, 184 pp.

Dorrie, Heinrich. *100 Great Problems of Elementary Mathematics.* Dover, 1965, 389 pp.

Dowdy, S. M. *Mathematics: Art and Science.* Wiley, 1971, 282 pp.

A somewhat sophisticated exposition.

☆ Eves, Howard W. *In Mathematical Circles.* 2 vols. Prindle, 1969, 136 pp., 145 pp.

A collection of 360 delightful anecdotes; will appeal to readers of every age.

☆ _____. *Mathematical Circles Revisited: A Second Collection of Mathematical Stories and Anecdotes.* Prindle, 1971, 186 pp.

☆ _____. *Mathematical Circles Squared.* Prindle, 1972.

Félix, Lucienne. *The Modern Aspect of Mathematics.* Basic, 1960, 194 pp.

Freudenthal, Hans. *Mathematics Observed.* World University, 1968, 256 pp.

For the mature reader; fascinating discussions of assorted topics, e.g., computers, Nim, iterative processes, infinity, topology, mechanics, world measurement.

☆ Fuchs, Walter R. *Mathematics for the Modern Mind.* Macmillan, 1967, 286 pp.

Lucid and fascinating excursion through the sweep of modern mathematics, including basic concepts and foundations, logic, structure, sets, group theory, number theory, game theory, topology, and mathematical philosophy.

Ghyka, Matila. *The Geometry of Art and Life*. Sheed, 1946, 174 pp.

Proportion and symmetry, golden section, dynamic symmetry; regular polygons and polyhedra; regular partitions.

☆ Goodman, A. W. *The Pleasures of Math*. Collier, 1965, cloth; Macmillan, 1965, 224 pp., paper.

A stimulating, witty introduction to challenging mathematical topics and recreations, including inequalities, mathematical induction, the four-color problem, magic squares, conic sections, etc.

Gross, Herbert I., and Frank L. Miller. *Mathematics: A Chronicle of Human Endeavor*. Holt, 1971, 367 pp.

Hadamard, Jacques. *The Psychology of Invention in the Mathematical Field*. Dover, 1954, 145 pp.

☆ Hardy, G. H. *A Mathematician's Apology*. Foreword by C. P. Snow. Cambridge, 1967, 153 pp.

New edition of a justly renowned classic.

Hartkopf, Roy. *Maths for Those Who Hate It*. Rigby, 1965, 250 pp.

Hogben, Lancelot. *Mathematics for the Million*. 4th ed. Norton, 1968, 660 pp.

A pioneer best seller among popular books on mathematics; somewhat more demanding on the reader than its title suggests.

Holt, M. J., and A. J. McIntosh. *The Scope of Mathematics*. Oxford, 1966, 266 pp.

A fresh look at mathematics for the nonspecialist; historical as well as mathematical; fairly mature reading.

Honsberger, Ross. *Ingenuity in Mathematics*. Singer, 1970, 204 pp.

Brief, self-contained essays on significant topics of elementary mathematics; lively reading.

☆ Huntley, H. E. *The Divine Proportion: A Study in Mathematical Beauty*. Dover, 1970, 186 pp., paper.

Jacobs, Harold R. *Mathematics: A Human Endeavor*. Freeman, 1970, 529 pp.

Appealing style; excellent presentation for the tyro.

☆ Kasner, Edward, and James R. Newman. *Mathematics and the Imagination*. Simon, 1940, 380 pp.

Still one of the most popular expositions of mathematics.

Kenna, L. A. *Understanding Mathematics with Visual Aids*. Littlefield, 1962, 174 pp., paper.

Kershner, Richard, and L. R. Wilcox. *Anatomy of Mathematics*. Ronald, 1950, 416 pp.

Kline, Morris. *Mathematics: A Cultural Approach*. Addison, 1962, 701 pp.

☆ _____. *Mathematics in the Modern World*. Freeman, 1968, 409 pp.

Readings from the *Scientific American*.

☆ _____. *Mathematics in Western Culture*. Oxford, 1953, 484 pp.

Klinger, Fred. *Mathematics for Everyone*. Philosophical, 1966, 195 pp.

Kokomoor, F. W. *Mathematics in Human Affairs*. Prentice, 1942, 754 pp.

An outstanding piece of popular exposition.

Kramer, Edna E. *The Main Stream of Mathematics*. Oxford, 1951, 321 pp.

A popular account of the nature, development, and significance of mathematics.

_____. *The Nature and Growth of Modern Mathematics*. Hawthorn, 1970, 758 pp.

Pure and applied mathematics; traditional approach integrated with the modern approach; for sophisticated, mature readers.

Land, Frank. *The Language of Mathematics*. Doubleday, 1963, 264 pp.

Lieber, Lillian R. *The Education of T. C. Mits*. Illustrated by Hugh G. Lieber. Rev. and enl. ed. Norton, 1944, 230 pp.

Unique style and unusual drawings; whimsical yet sober exposition of the fundamental nature of mathematics.

_____. *Human Values and Science, Art and Mathematics*. Norton, 1961, 149 pp.

_____. *Infinity*. Holt, 1953, 359 pp.

_____. *Mits, Wits and Logic*. 3d ed. Norton, 1960, 240 pp.

Another sparkling and sophisticated exposition.

_____. *Take a Number: Mathematics for the Two Billion*. Ronald, 1946, 221 pp.

A novel introductory survey of elementary algebra and geometry.

MacNeil, David B. *Modern Mathematics for the Practical Man*. Van Nostrand, 1963, 310 pp.

Applied modern mathematics; for the sophisticated reader.

Menninger, Karl W. *Mathematics in Your World*. Viking, 1962, 291 pp.

Merrill, Helen. *Mathematical Excursions*. Dover, 1958, 145 pp., paper.

Messick, David M., ed. *Mathematical Thinking in the Behavorial Sciences*. Freeman, 1968, 231 pp.

For social science majors, general mathematics students, teachers, laymen, etc.

Midonick, Henrietta O., ed. *The Treasury of Mathematics*. Philosophical, 1965, 820 pp.

An anthology of fifty-four selections dealing with historical and philosophical development of mathematics.

Montague, H. F., and M. D. Montgomery. *The Significance of Mathematics*. Merrill, 1963, 290 pp.

Moritz, Robert E. *On Mathematics and Mathematicians*. Dover, 1942, 310 pp., paper.

A reissue of the well-known book of quotations that appeared in 1914 under the title *Memorabilia Mathematica*.

Munroe, M. Evans. *Ideas in Mathematics*. Addison, 1968, 264 pp.

A sampling for nonmathematicians; includes logic, sets, probability, calculus, linear algebra, abstract algebra, computer programming.

———. *The Language of Mathematics*. Michigan, 1963, 94 pp.

National Research Council: Committee on Support of Research in the Mathematical Sciences. *The Mathematical Sciences: A Collection of Essays*. MIT, 1969, 271 pp.

An excellent presentation, for the nonmathematical reader, of some of the outstanding achievements of mid-twentieth-century mathematics; e.g., in functional analysis, probability theory, combinatorics, transfinite numbers, mathematical linguistics and computers, etc.

Newman, James R., ed. *The World of Mathematics*. 4 vols. Simon, 1956, 2,535 pp.

A comprehensive anthology of assorted readings about many facets of mathematics from ancient times to the present.

☆ Newsom, Carroll V. *Mathematical Discourses: The Heart of Mathematical Science*. Prentice, 1964, 121 pp.

Sophisticated and scholarly exposition of the essence of mathematical thought; for mature readers.

☆ Ogilvy, Charles Stanley. *Through the Mathescope*. Oxford, 1965, 162 pp.

Popular essays on number theory, algebra, geometry, and elementary analysis.

———. *Tomorrow's Math: Unsolved Problems for the Amateur*. Oxford, 1972, 198 pp.

☆ Pedoe, Dan. *The Gentle Art of Mathematics*. Macmillan, 1959, 143 pp.

Delightfully readable informal discussions of number scales, probability, infinity, logic, topology, and other topics.

☆ Penney, David E. *Perspectives in Mathematics*. Benjamin, 1972, 349 pp.

An expository treatment, similar to Stein's *Mathematics; the Man-Made Universe*, only somewhat more pentrating and sophisticated; numerous exercises, but good collateral reading.

☆ Péter, Rózsa. *Playing with Infinity: Mathematics for Everyman*. Simon, 1962, 268 pp.

Scholarly and thoughtful treatment of subtle concepts.

☆ Rademacher, Hans, and Otto Toeplitz. *The Enjoyment of Mathematics: Selections from Mathematics for the Amateur*. Princeton, 1957, 204 pp.

Fairly advanced but thoroughly readable essays on significant topics.

Rapport, Samuel, and Helen Wright, eds. *Mathematics*. Washington, 1964, 319 pp., paper.

A diversified anthology of essays and excerpts on the nature of mathematics and its role in our civilization.

Rashevsky, Nicolas. *Looking at History through Mathematics*. MIT, 1968, 199 pp.

Possible applications of the mathematics of growing organisms to the growth of societies over long periods of time.

Read, A. H., *A Signpost to Mathematics*. Thrift Books, no. 8. C. A. Watts, 1951, 123 pp., paper.

Excellent discussion of principles that guide the mathematician.

Reichmann, W. J. *The Spell of Mathematics*. Methuen, 1967; B. and N., 1968, 272 pp.

Reid, Constance. *Introduction to Higher Mathematics for the General Reader*. Apollo, 1962, 184 pp., paper.

Renyi, Alfred. *Dialogues on Mathematics*. Holden, 1967, 100 pp.

Discussion of the nature of mathematics and its applications.

Saaty, Thomas L., and F. J. Weyl, eds. *The Spirit and the Uses of the Mathematical Sciences*. McGraw, 1969, 301 pp.

Sawyer, W. W. *Mathematicians' Delight*. Penguin, 1946, 215 pp., paper.

_____. *A Path to Modern Mathematics*. Penguin, 1966, 224 pp., paper.

_____. *Prelude to Mathematics*. Penguin, 1955, 214 pp., paper.

A stimulating popular exposition, including non-Euclidean geometry, matrix algebra, projective geometry, group theory.

_____. *The Search for Pattern*. Penguin, 1970, 349 pp., paper.

Insight into mathematical ideas; for laymen and students.

Schaaf, William L., ed. *Our Mathematical Heritage*. Collier, 1962, 288 pp., paper.

Philosophy and humanism; for the general reader.

Singh, Jagjit. *Great Ideas of Modern Mathematics: Their Nature and Use*. Dover, 1959, 312 pp., paper.

Spitznagel, Edward L., Jr. *Selected Topics in Mathematics*. Holt, 1971, 323 pp.

Fairly sophisticated level.

Stein, Sherman K. *Mathematics, the Man-Made Universe: An Introduction to the Spirit of Mathematics*. Freeman, 1969, 415 pp.

Original and stimulating.

Steinhaus, Hugo. *Mathematical Snapshots*. 2d ed. Oxford, 1960, 328 pp.

Tietze, Heinrich. *Famous Problems of Mathematics: Solved and Unsolved Mathematical Problems from Antiquity to Modern Times*. 2d ed. Graylock, 1965, 367 pp.

Scholarly discussion of miscellaneous significant problems, including space curvature, infinity, prime numbers, angle trisection, circle squaring, regular polygon of seventeen sides, four-color problem, etc. For mature readers.

Valens, Evans G., Jr. *The Number of Things: Pythagoras, Geometry and Humming Strings*. Dutton, 1964, 189 pp.

Pythagorean philosophy of numbers, including the golden section, the Pythagorean theorem, tangrams and dissections, musical scales, and related topics.

Willerding, Margaret F., and Ruth A. Hayward. *Mathematics: The Alphabet of Science.* Wiley, 1968, 285 pp.

Simple treatment of significant topics to illustrate the scope and beauty of mathematics.

Young, Frederick H. *The Nature of Mathematics.* Wiley, 1968, 407 pp.

Youse, Bevan K. *An Introduction to Mathematics.* Allyn, 1970, 287 pp.

An introduction to the nature and spirit of mathematics.

☆ Zippin, Leo. *Uses of Infinity.* New Mathematical Library, vol. 7. Random, 1962, 151 pp., cloth and paper.

Basic Concepts; Modern Mathematics; Survey Mathematics

Allen, R. G. D. *Basic Mathematics.* St. Martin's, 1962, 512 pp.

Allendoerfer, C. B., and C. O. Oakley. *Principles of Mathematics.* 1st and 2d eds. McGraw, 1955, 1963, 448 pp.

Armstrong, James W. *Elements of Mathematics.* Macmillan, 1970, 306 pp.

Banks, J. Houston. *Elements of Mathematics.* 2d ed. Allyn, 1961, 465 pp.

Baum, John, and Roy Dobyns. *The Structure of the Real Number System.* Prentice, 1967, unpaged.

Bouwsma, W. D., C. G. Corle, and D. F. Clemson. *Basic Mathematics for Elementary Teachers.* Ronald, 1964, 342 pp.

Bush, George C., and Phillip E. Obreanu. *Basic Concepts of Mathematics.* Holt, 1965, 387 pp.

Byrne, J. Richard. *Modern Elementary Mathematics.* McGraw, 1966, 444 pp.

Calloway, Jean M. *Fundamentals of Modern Mathematics.* Addison, 1964, 213 pp.

Carter, Hobart C. *Modern Basic Mathematics.* Appleton, 1964, 466 pp.

Clark, Frank. *Contemporary Mathematics.* Watts, 1964, 203 pp.

Emphasis on binary numbers, sets and circuits, symbolic logic, topology, and probability and statistics.

Crouch, Ralph, George Baldwin, and Robert J. Wisner. *Preparatory Mathematics for Elementary Teachers.* Wiley, 1965, 505 pp.

Crowdis, David, and Brandon Wheeler. *Introduction to Mathematical Ideas.* McGraw, 1969, 352 pp.

☆ Davis, Robert B. *Explorations in Mathematics: A Text for Teachers.* Addison, 1967, 421 pp., paper.

Dinkines, Flora. *Elementary Concepts of Modern Mathematics.* Appleton, 1964, 457 pp.

Drooyan, Irving, and Walter Hadel. *A Programmed Introduction to Number Systems.* Wiley, 1964, 261 pp., paper.

Dwight, Leslie A. *Modern Mathematics for the Elementary Teacher.* Holt, 1966, 598 pp.

Evans, Trevor. *Fundamentals of Mathematics.* Prentice, 1959, 289 pp.

Fehr, Howard F., and T. J. Hill. *Contemporary Mathematics for Elementary Teachers.* Heath, 1966, 394 pp.

Fine, Nathan J. *An Introduction to Modern Mathematics.* McGraw, 1967, 509 pp.

Fraleigh, John B. *Mainstreams of Mathematics.* Addison, 1969, 513 pp.

Fujii, John N. *Basic Skills in Mathematics.* Blaisdell, 1967, 273 pp.

Goodstein, R. L. *Fundamental Concepts of Mathematics.* Pergamon, 1962, 279 pp.

Hacker, S. G., W. E. Barnes, and C. T. Long. *Fundamental Concepts of Arithmetic.* Prentice, 1963, 271 pp.

Hafstrom, John E. *Basic Concepts in Modern Mathematics.* Addison, 1961, 195 pp.

Hamilton, N. T., and Joseph Landin. *Set Theory: The Structure of Arithmetic.* 2d ed. Allyn, 1961, 264 pp.

Harmon, F. L., and D. E. Dupree. *Fundamental Concepts of Mathematics.* Prentice, 1964, 233 pp.

Heinke, Clarence H. *Fundamental Concepts of Elementary Mathematics.* Dickenson, 1970, 348 pp.

A first course for elementary school teachers.

Horner, D. R. *A Survey of College Mathematics.* Holt, 1967, 308 pp.

Jackowski, Alphonse J., and John B. Sbrega. *Fundamentals of Modern Mathematics.* Prentice, 1970, 420 pp.

Johnson, Wendell G., and L. N. Zaccaro. *Modern Introductory Mathematics.* McGraw, 1966, 556 pp.

Jones, Burton W. *Elementary Concepts of Mathematics.* 3d ed. Macmillan, 1970, 400 pp.

Keedy, Marvin L. *A Modern Introduction to Basic Mathematics.* 2d ed. Addison, 1963, 482 pp.

_____. *Number Systems: A Modern Introduction.* Addison, 1965, 226 pp.

Kemeny, John G., J. L. Snell, and G. L. Thompson. *Introduction to Finite Mathematics.* 2d ed. Prentice, 1966, 465 pp.

Kemeny, John G., et al. *Finite Mathematical Structures.* Prentice, 1959, 487 pp.

Kingston, J. Maurice. *Mathematics for Teachers of the Middle Grades.* Wiley, 1966, 322 pp.

Klose, Orval M. *The Number Systems and Operations of Arithmetic.* Pergamon, 1966, 265 pp., paper.

Designed primarily for elementary school teachers.

Kovach, Ladis. *Modern Elementary Mathematics.* Holden, 1968, 523 pp.

May, Kenneth O. *Elements of Modern Mathematics.* Addison, 1959, 607 pp.

Meserve, Bruce E., and Max A. Sobel. *Elements of Mathematics.* Prentice, 1968, 303 pp.

Mitchell, Benjamin, and Haskell Cohen. *A New Look at Elementary Mathematics.* Prentice, 1965, 354 pp.

Nahikian, Howard M. *Topics in Modern Mathematics.* Macmillan, 1966, 262 pp.

A unique introduction to finite mathematics for students of the physical, biological, and social sciences: set theory, Boolean algebra, matrix theory, vector spaces, probability.

Ohmer, M. M., C. V. Aucoin, and M. J. Cortez. *Elementary Contemporary Mathematics.* Blaisdell, 1964, 380 pp.

Paige, Donald, Robert Willcutt, and Robert Wagenblast. *Elementary Mathematics.* Prindle, 1969, 264 pp.

Parker, Francis D. *The Structure of Number Systems.* Prentice, 1966, 137 pp.

Designed for preservice education of elementary school teachers.

Person, Russell V. *Essentials of Mathematics.* Wiley, 1968, 721 pp.

Peterson, John, and Joseph Hashisaki. *Theory of Arithmetic.* Wiley, 1967, 338 pp.

Rees, Paul K. *Principles of Mathematics.* Prentice, 1965, 383 pp.

Revision of *Freshman Mathematics.*

Richardson, Moses. *Fundamentals of Mathematics.* 3d ed. Macmillan, 1966, 603 pp.

This third edition contains material on vectors, matrices, linear systems, electronic computers, information theory, and linear programming.

Richman, Fred, Carol Walker, and R. J. Wisner. *Mathematics for the Liberal Arts Student.* Brooks, 1967, 200 pp.

Schaaf, William L. *Basic Concepts of Elementary Mathematics.* 3d ed. Wiley, 1969, 400 pp.

School Mathematics Study Group. *A Brief Course in Mathematics for Elementary School Teachers.* Studies in Mathematics, vol. 9. SMSG, 1963.

Smith, Seaton E., Jr. *Explorations in Elementary Mathematics.* Prentice, 1966, 280 pp.

Wade, Thomas L., and H. E. Taylor. *Fundamental Mathematics.* 2d ed. McGraw, 1961, 428 pp.

Ward, Morgan, and Clarence Ethel Hardgrove. *Modern Elementary Mathematics.* Addison, 1964, 420 pp.

Washington, A. J., H. R. Boyd, and S. H. Plotkin. *Essentials of Basic Mathematics.* Addison, 1967, 292 pp.

Wheeler, Ruric E. *Modern Mathematics – an Elementary Approach.* Brooks, 1970, 628 pp.

Wilcox, Marie, and John Yarnelle. *Basic Modern Mathematics.* Addison, 1964, 392 pp.

Willerding, Margaret. *Elementary Mathematics: Its Structure and Concepts.* 2d ed. Wiley, 1970, 474 pp.

Wilson, Jack. *Elementary Mathematics: A Modern Approach.* McGraw, 1967, 389 pp.

A conventional "modern" text designed for nonscience college students; elementary and unsophisticated.

Wren, F. Lynwood. *Basic Mathematical Concepts.* McGraw, 1965, 398 pp.

Youse, B. K. *Fundamental Mathematics.* Dickenson, 1967, 394 pp.

Foundations of Mathematics; Logic; Philosophy of Mathematics

Barker, Stephen F. *Philosophy of Mathematics.* Prentice, 1964, 111 pp., paper.

For the mature reader.

Benacerraf, Paul, and Hilary Putnam, eds. *Philosophy of Mathematics: Selected Readings.* Prentice, 1964, 536 pp.

Rather steep reading, but includes rewarding selections by von Neumann, Hempel, Poincaré, Frege, Russell, Hilbert, Carnap, Quine, and others. Extensive bibliography. For the advanced student.

Brant, Vincent, and Marvin Keedy. *Elementary Logic for Secondary Schools.* Holt, 1962, 123 pp., paper.

Breuer, Joseph. *Introduction to the Theory of Sets.* Prentice, 1958, 108 pp.

An elementary treatment of finite and infinite sets, ordered sets, and point sets; brief, but very lucid.

Calloway, Jean M. *Fundamentals of Modern Mathematics.* Addison, 1964, 213 pp.

Eves, Howard, and Carroll V. Newsom. *An Introduction to the Foundations and Fundamental Concepts of Mathematics.* Rev. ed. Holt, 1965, 398 pp.

An advanced text; comprehensive and rigorous.

Exner, R. M., and Myron Rosskopf. *Logic in Elementary Mathematics*. McGraw, 1959, 274 pp.

Goodstein, Reuben L. *Mathematical Logic*. Ungar, 1961, 104 pp.

Halberstadt, William H. *An Introduction to Modern Logic*. Harper, 1960, 221 pp.

An elementary textbook on symbolic logic.

Kenelly, John W. *Informal Logic*. Allyn, 1967, 134 pp.

An introduction to symbolic logic; presupposes familiarity with high school algebra; bibliography.

Kleene, S. C. *Introduction to Metamathematics*. Van Nostrand, 1952, 550 pp.

Körner, Stephan. *The Philosophy of Mathematics*. Harper, 1960, 198 pp., paper.

An introductory treatment, but nonetheless scholarly and substantial; for mature readers.

Meschkowski, Herbert. *Evolution of Mathematical Thought*. Holden, 1965, 157 pp.

Scholarly historical introduction to the foundations of mathematics; also of general cultural, philosophical, and pedagogical interest.

Nagel, Ernest, and James Newman. *Gödel's Proof*. NYU, 1958, 118 pp., cloth and paper.

An exceptionally lucid explanation of an abstruse topic; for the mathematically mature reader.

Scheid, Francis. *Elements of Finite Mathematics*. Addison, 1962, 279 pp.

An introductory exposition.

Stabler, E. R. *An Introduction to Mathematical Thought*. Addison, 1953, 268 pp.

Comprehensive presentation of the logical foundations of mathematics; for mature readers.

Stoll, R. R. *Sets, Logic, and Axiomatic Theories*. Freeman, 1961, 206 pp., paper.

Elementary, but fairly rigorous.

Suppes, Patrick. *Introduction to Logic*. Van Nostrand, 1957, 312 pp.

College level.

Ulam, S. M. *Problems in Modern Mathematics*. Wiley, 1964, 150 pp., paper.

For the advanced reader; problems in modern algebra, metric spaces, topological spaces, group theory, etc.

Waismann, Friedrich. *Introduction to Mathematical Thinking*. Harper, 1959, 260 pp., paper.

Logical foundations of mathematics; for advanced readers.

Wilder, Raymond L. *Introduction to the Foundations of Mathematics*. 2d ed. Wiley, 1965, 327 pp.

For advanced students; emphasizes set theory and logic.

Historical Backgrounds

Aaboe, Asger. *Episodes from the Early History of Mathematics.* New Mathematical Library, vol. 13. Random, 1964, 133 pp., cloth and paper.

Babylonian mathematics; early Greek mathematicians; Archimedes and Ptolemy.

Ball, W. W. R. *A Short Account of the History of Mathematics.* 4th ed. Dover, 1960, 522 pp., paper.

Beckmann, Petr. *A History of* π. Golem, 1970, 190 pp.

Bell, E. T. *The Development of Mathematics.* 2d ed. McGraw, 1945, 583 pp.

Advanced reading; authoritative; brings history down to the early twentieth century.

Berger, Melvin. *For Good Measure: The Story of Modern Measurement.* McGraw, 1969, 160 pp.

Boyer, Carl B. *History of Analytic Geometry.* Academic, 1956, 291 pp.

———. *The History of the Calculus and Its Conceptual Development.* Dover, 1959, 346 pp., paper.

Scholarly treatise on the historical development of the calculus from earliest times to the present.

☆ ———. *History of Mathematics.* Wiley, 1968, 717 pp.

Excellent survey of the subject.

Cajori, Florian. *A History of Mathematics.* 2d ed. Macmillan, 1929, 516 pp.

Cohen, M. R., and I. E. Drabkin. *A Source Book in Greek Science.* Harvard, 1959, 579 pp., paper.

☆ Dantzig, Tobias. *The Bequest of the Greeks.* Allen, 1955, Greenwood, 1969, 191 pp.

Very scholarly; quite readable.

☆ Eves, Howard. *An Introduction to the History of Mathematics.* 3d ed., rev. and enl. Holt, 1969, 464 pp.

Farrington, Benjamin. *Greek Science.* Penguin; 1961, 320 pp., paper.

Very readable, especially chapter 3, part 1, and chapter 2, part 2.

Freebury, H. A. *A History of Mathematics.* Macmillan, 1961, 198 pp.

Heath, Sir Thomas L. *Diophantus of Alexandria.* 2d rev. ed. Dover, 1964, 387 pp., paper; Smith, 1964, cloth.

———. *A Manual of Greek Mathematics.* Dover, 1931, 552 pp., paper.

Hofmann, Joseph E. *Classical Mathematics: A Concise History of the Classical Era in Mathematics.* Philosophical, 1959, 159 pp.

———. *The History of Mathematics.* Philosophical, 1957, 132 pp.

☆ Hogben, Lancelot. *Mathematics in the Making.* Doubleday, 1960, 320 pp.

Colorful and attractive, even if slightly superficial.

_____. *The Wonderful World of Mathematics.* Doubleday, 1955, 69 pp.

First published in England as *Man Must Measure;* a pictorial history of mathematics and science.

Hooper, Alfred. *Makers of Mathematics.* Vintage, 1948, 402 pp., paper.

Karpinski, L. C. *The History of Arithmetic.* Russell, 1965, 200 pp.

Lanczos, Cornelius. *Space through the Ages.* Academic, 1970, 320 pp.

A history of geometrical thinking; for the sophisticated reader.

Lasserre, François. *The Birth of Mathematics in the Age of Plato.* Meridian, 1966, 190 pp., paper.

Lauber, Patricia. *The Story of Numbers.* Random, 1961, 80 pp.

Introductory; interesting treatment.

Marks, Robert W., ed. *The Growth of Mathematics: From Counting to Calculus.* Bantam, 1964, 217 pp., paper.

A collection of articles on the history of mathematics down to the beginning of the eighteenth century.

Maziarz, Edward A., and Thomas Greenwood. *Greek Mathematical Philosophy.* Ungar; 1968, 271 pp.

A cultural survey of the period from Thales through Euclid.

Menninger, Karl. *Number Words and Number Symbols: A Cultural History of Numbers.* MIT, 1969, 480 pp.

Meschkowski, Herbert. *Evolution of Mathematical Thought.* Holden, 1965, 157 pp.

For mature readers; scholarly and sophisticated.

_____. *Ways of Thought of Great Mathematicians.* Holden, 1964, 110 pp., paper.

Excellent supplement to conventional histories of mathematics; surveys the creative thinking of the Pythagoreans, Nicholas of Cusa, Pascal, Gauss, Boole, Weierstrass, and Cantor.

Midonick, Henrietta O., ed. *The Treasury of Mathematics.* Philosophical, 1965, 820 pp.

Collection of over fifty essays on significant contributions in the historical development of mathematics.

☆ National Council of Teachers of Mathematics. *Historical Topics for the Mathematics Classroom.* 31st Yearbook. NCTM, 1969, 544 pp.

A substantial treatment of the use of the history of mathematics in the teaching of mathematics. Significant historical material presented in a form designed specifically for classroom use.

Neugebauer, Otto. *The Exact Sciences in Antiquity.* 2d ed. Harper, 1962, 240 pp., paper.

A scholarly classic.

Owen, George E. *The Universe of the Mind.* Hopkins, 1971, 349 pp.

A history of ideas in mathematics and physics.

Pullan, J. M. *The History of the Abacus*. Praeger, 1969, 127 pp.

Well illustrated; extensive bibliography.

Resnikoff, H. L., and R. O. Wells, Jr. *Mathematics in Civilization*. Preliminary ed. Holt, 1971, 583 pp.

Historical development of man's "ability to compute" and the "geometrical nature of space"; bibliography.

Rogers, James T. *The Pantheon Story of Mathematics for Young People*. Pantheon, 1966, 127 pp.

☆ Sanford, Vera. *A Short History of Mathematics*. Houghton, 1930, 402 pp.

Sarton, George. *Ancient Science and Modern Civilization*. Harper, 1959, 111 pp., paper; Nebraska, 1964, paper.

———. *Appreciation of Ancient and Medieval Science during the Renaissance (1450-1600)*. Barnes, 1961, 233 pp., paper.

"Mathematics and Astronomy," pp. 133-65.

☆ Scott, Joseph F. *A History of Mathematics from Antiquity to the Beginning of the Nineteenth Century*. 2d ed. International Publications, 1960, B. and N., 1970, 266 pp.

Smith, David Eugene. *History of Mathematics*. 2 vols. Dover, vol. 1, 1923, vol. 2, 1925; 596 pp., 725 pp., paper.

Smith, David Eugene, and Jekuthiel Ginsburg. *History of Mathematics in America before 1900*. MAA Carus Monographs, no. 5. Open, 1934, 209 pp.

☆ Struik, D. J. *A Concise History of Mathematics*. 3d rev. ed. Dover, 1967, 299 pp., paper.

———. *A Source Book in Mathematics, 1200-1800*. Harvard, 1969, 430 pp.

Sullivan, J. W. N. *The History of Mathematics in Europe*. Oxford, 1925, 109 pp.

Turnbull, H. W. *The Mathematical Discoveries of Newton*. Blackie, 1945, 68 pp.

☆ Van der Waerden, B. L. *Science Awakening*. Oxford, 1961, 306 pp.; Wiley, paper.

A scholarly and comprehensive treatment of Babylonian, Egyptian, and Greek mathematics.

☆ Wilder, Raymond L. *Evolution of Mathematical Concepts*. Wiley, 1968, 224 pp.

A perceptive and engaging book; for the nonmathematical reader.

☆ Wolff, Peter. *Breakthroughs in Mathematics*. New American, 1964, 285 pp., paper.

A vivid presentation of the significant contributions made by nine great mathematicians: Euclid, Lobachevski, Descartes, Archimedes, Dedekind, Russell, Euler, Laplace, and Boole.

Yeldham, Florence. *The Story of Reckoning in the Middle Ages*. Harrap, 1926, 95 pp.

Biographies and Personalities

Andrade, E. N. da C. *Sir Isaac Newton*. Doubleday, 1958, 111 pp., paper.

Anthony, H. D. *Sir Isaac Newton*. Abelard, 1960; Collier, 1961, 188 pp., paper.

Armitage, Angus. *Copernicus: The Founder of Modern Astronomy*. Barnes, 1962, paper.

———. *The World of Copernicus*. Mentor, 1951, 165 pp., paper.
Reprint of *Sun, Stand Thou Still* (Abelard, 1947).

Beckhard, Arthur. *Albert Einstein*. Putnam, 1959, 126 pp.; Avon, 1960, paper.

Bell, Eric T. *Men of Mathematics*. Simon, 1937, 592 pp., cloth and paper.
A classic; contains piquant, terse characterizations of the personalities and achievements of some thirty-five outstanding mathematicians of all time.

Bendick, Jeanne. *Archimedes and the Door of Science*. Watts, 1962, 143 pp.
For young readers.

Bishop, Morris. *Pascal: The Life of Genius*. Williams, 1936, 398 pp.

Bixby, William, and Giorgio DeSantillano. *The Universe of Galileo and Newton*. Harper, 1964, 153 pp.

Cahn, William. *Einstein: A Pictorial Biography*. Citadel, 1955, 128 pp., paper.

Cailliet, Emile. *Pascal, the Emergence of Genius*. Harper, 1961, 383 pp.

Caspar, Max. *Kepler: 1571-1630*. Collier, 1962, 416 pp., paper; Abelard, 1962.

Coolidge, Julian. *The Mathematics of Great Amateurs*. Dover, 1949, 211 pp., paper.

DeLacy, Estelle. *Euclid and Geometry*. Watts, 1963, 120 pp.
For young readers.

Dijksterhuis, E. J. *Archimedes*. Humanities, 1957, 421 pp.

Dreyer, J. L. E. *Tycho Brahe*. Dover, 1963, 405 pp., paper; Smith, 1964, cloth.
A picture of science in the sixteenth century.

Dunnington, G. Waldo. *Carl Friedrich Gauss: Titan of Science*. Hafner, 1955, 479 pp.
A definitive biography; scholarly and exhaustive.

Einstein, Albert. *Out of My Later Years*. Philosophical, 1950, 282 pp.
Collected essays by Einstein, revealing his political, social, and philosophical attitudes as well as observations on science.

Fermi, Laura, and Gilberto Bernardini. *Galileo and the Scientific Revolution*. Basic, 1961, 150 pp.; Fawcett, paper.

Frank, Phillip. *Einstein: His Life and Times*. Knopf, 1953, 298 pp.

Freeman, Mae B. *The Story of Albert Einstein*. Random, 1958, 178 pp.

Halacy, Dan. *Charles Babbage: Father of the Computer*. Crowell, 1970, 170 pp.

Hall, Tord. *Carl Friedrich Gauss: A Biography*. Translated by Albert Froderberg. MIT, 1970, 176 pp.

A sophisticated treatment, with major emphasis on Gauss's contributions to mathematics.

Heath, Thomas L. *Diophantus of Alexandria*. 2d rev. ed. Dover, 1964, 387 pp., paper; Smith, 1964, cloth.

Hoffman, Banesh, and Helen Dukas. *Albert Einstein: Creator and Rebel*. Viking, 1972, 272 pp.

A very perceptive biography.

Infeld, Leopold. *Albert Einstein*. Scribner, 1950, 134 pp., cloth and paper.

☆ ———. *Whom the Gods Love: The Story of Evariste Galois*. Whittlesey, 1948, 323 pp.

Knight, David C. *Isaac Newton: Mastermind of Modern Science*. Watts, 1961, 153 pp.

For young readers.

———. *Johannes Kepler and Planetary Motion*. Watts, 1962, 186 pp.

For young readers.

Lauber, Patricia. *The Quest of Galileo*. Doubleday, 1959, 56 pp.

Leerburger, Benedict. *Josiah Gibbs, American Theoretical Physicist*. Watts. 1963, 118 pp.

For young readers.

Levinger, Elma E. *Albert Einstein*. Messner, 1949, 174 pp.

Popular, informal style.

———. *Galileo: First Observer of Marvelous Things*. Messner, 1952, 180 pp.

Popular, informal style.

Manuel, Frank E. *A Portrait of Isaac Newton*. Harvard, 1968, 478 pp.

Marcus, Rebecca. *Galileo and Experimental Science*. Watts, 1961, 134 pp.

For young readers.

McMullin, Ernan, ed. *Galileo: Man of Science*. Basic, 1967, 455 pp.

A collection of twenty-three papers by distinguished scholars. Bibliography.

Michelmore, Peter. *Einstein: Profile of the Man*. Dodd, 1962, 269 pp.; Apollo, 1963, paper.

Moore, Patrick. *Isaac Newton*. Putnam, 1958, 128 pp.

More, Louis T. *Isaac Newton: A Biography*. Smith, 1963, 673 pp.

☆ Muir, Jane. *Of Men and Numbers: The Story of the Great Mathematicians*. Dodd, 1961, 249 pp.; Dell, paper.

Lucid and crisp accounts.

Ore, Oystein. *Cardano, the Gambling Scholar*. Smith, 1953, 249 pp ·· er, paper.

_____. *Niels Henrik Abel, Mathematician Extraordinary*. Minnesota, 1957, 277 pp.

Peare, Catherine O. *Albert Einstein*. Holt, 1949, 152 pp.

Reid, Constance. *Hilbert*. Springer, 1970, 290 pp.

Ronan, Colin. *The Astronomers*. Hill, 1964, 232 pp.

The lives, beliefs, and discoveries of such pioneers as Pythagoras, Copernicus, Newton, and Einstein, among others.

Rukeyser, Muriel. *Willard Gibbs, American Genius*. Dutton, 465 pp.

☆ Schaaf, William L. *Carl Friedrich Gauss, Prince of Mathematicians*. Watts, 1964, 168 pp.

For young readers.

Shaw, Harold Alan, and Keri Fuge. *The Story of Mathematics*. St. Martin's, 1963, 64 pp.

For young readers, with intriguing illustrations.

Sootin, Harry. *Isaac Newton*. Messner, 1955, 191 pp.

Suitable for young readers.

Stonaker, Frances B. *Famous Mathematicians*. Lippincott, 1967, 118 pp.

Simple treatment, at junior high school level, of Euclid, Archimedes, al-Khwarismi, Descartes, Newton, Lagrange, Gauss, Galois, von Neumann, and Wiener.

☆ Sullivan, J. W. N. *Isaac Newton: 1642-1727*. Macmillan, 1938, 275 pp.

Very readable, penetrating study; one of the best biographies of Newton.

Tannenbaum, Beulah, and Myra Stillman. *Isaac Newton: Pioneer in Space Mathematics*. McGraw, 1959, 128 pp.

☆ Turnbull, H. W. *The Great Mathematicians*. NYU, 1961, 141 pp.; Simon, 1962, paper.

Excellent accounts of Pythagoras, Euclid, Archimedes, Descartes, Newton, Euler, Lagrange, Gauss, etc.

Vallentin, Antonina. *The Drama of Albert Einstein*. Doubleday, 1954, 312 pp.

A very warm and human account.

Wheeler, L. P. *Josiah Willard Gibbs: The History of a Great Mind*. Yale, 1952, 270 pp.

Wiener, Norbert. *I Am a Mathematician*. Doubleday, 1956, 380 pp., cloth; MIT, paper.

Autobiography of a well-known mathematician and former child prodigy.

Recreational Mathematics

Abraham, R. M. *Diversions and Pastimes.* Smith, 1935, 153 pp.; Dover, 1964, paper.

Match and coin games; knots and strings; games with paper; conventional puzzles.

Adler, Irving. *Magic House of Numbers.* Day, 1957, 128 pp.; New American, paper.

Collection of arithmetic puzzles, number tricks, calculating tricks, games with numbers.

* Bakst, Aaron. *Mathematical Puzzles and Pastimes.* 2d ed. Van Nostrand, 1965, 242 pp.

A collection of more or less conventional mathematical recreations.

* Ball, W. W. R. *Mathematical Recreations and Essays.* Macmillan, 1960, 418 pp., cloth and paper.

Exceedingly popular; contains most of the classical arithmetic and geometric recreations; also polyhedra, chessboard recreations, magic squares, map-coloring problems, classical problems of antiquity, cryptography.

Barnard, Douglas St. Paul. *Adventures in Mathematics.* Hawthorn, 1965, 130 pp.

Recreational mathematics for the general reader.

Barr, George. *Entertaining with Number Tricks.* McGraw, 1971, 143 pp.

Barr, Stephen. *A Miscellany of Puzzles: Mathematical and Otherwise.* Crowell, 1965, 164 pp.

Beiler, Albert H. *Recrea[illegible]ns in the Theory of Numbers.* Dover, 1964, 349 pp., paper.

Covers many topics, including perfect numbers, Mersenne's numbers, amicable numbers, Farey series, etc.

Brooke, Maxey. *Fun for the Money.* Scribner, 1963, 96 pp.

A collection of puzzles and games with coins.

———. *150 Puzzles in Crypt-Arithmetic.* Dover, 1963, 72 pp., paper.

* Cadwell, J. H. *Topics in Recreational Mathematics.* Cambridge, 1966, 176 pp.

Carroll, Lewis [C. L. Dodgson]. *Symbolic Logic* and *The Game of Logic,* 2 books bound together as *Mathematical Recreations of Lewis Carroll,* vol. 1. 1896. Reprint. Dover, 1958, 199 pp., 69 pp., paper.

The first book consists of some 400 logic problems involving syllogisms and sorites.

———. *Pillow Problems* and *Tangled Tale.* 2 books bound together as *Mathematical Recreations of Lewis Carroll,* vol. 2. 1895. Reprint. Dover, 1958, 109 pp., 152 pp., paper.

Pillow Problems is a classical collection of seventy-two sophisticated brainteasers.

Davis, Philip J. *The Lore of Large Numbers.* Random, 1961, 165 pp., cloth and paper.

Dinesman, Howard. *Superior Mathematical Puzzles.* Allen, 1968, 122 pp.

☆ Domoryad, A. P. *Mathematical Games and Pastimes*. Translated from the Russian by Halina Moss. Pergamon, 1964, 298 pp.

A refreshing approach to "standard" mathematical recreations; well organized; sophisticated and very readable.

Dudeney, H. E. *Amusements in Mathematics*. Dover, 1958, 258 pp., paper.

———. *The Canterbury Puzzles*. Dover, 1958, 255 pp., paper.

A distinguished collection of mathematical recreations by a veteran puzzle expert.

———. *536 Puzzles and Curious Problems*. Edited by Martin Gardner. Scribner, 1967, 428 pp.

☆ Dunn, Angela. *Mathematical Bafflers*. McGraw, 1964, 217 pp.

Over 150 sophisticated problems involving algebra, geometry, Diophantine equations, probability, logic, theory of numbers.

Emmet, E. R. *Brain Puzzler's Delight*. Emerson, 1968, 254 pp.

Escher, Maurits C. *The Graphic Work of M. C. Escher*. Duell, 1961, 61 pp.

An unusual and delightful book that has to be seen to be believed; illustrations of tessellations, symmetry groups, etc., in ornament and design.

Fadiman, Clifton, ed. *Fantasia Mathematica*. Simon, 1958, 298 pp., cloth and paper.

———. *The Mathematical Magpie*. Simon, 1962, 300 pp.

Filipiak, Anthony S. *Mathematical Puzzles and Other Brain Twisters*. Barnes, 1964, 120 pp.

Freeman, Mae Blacker, and Ira Freeman. *Fun with Figures*. Random, 1946, 60 pp.

Interesting material on geometric figures; attractive photographs.

Friedland, Aaron J. *Puzzles in Math and Logic*. Dover, 1970, 66 pp., paper.

Some 100 original puzzles of various levels of difficulty, including numbers, geometry, logic, combinations, and probability.

Friend, J. N. *More Numbers: Fun and Facts*. Scribner, 1961, 201 pp.

———. *Numbers: Fun and Facts*. Scribner, 1954, 208 pp.

———. *Still More Numbers: Fun and Facts*. Scribner, 1964, 206 pp.

Frohlichstein, Jack. *Mathematical Fun, Games and Puzzles*. Smith, 1962, 306 pp.

Fujii, John N. *Puzzles and Graphs*. NCTM, 1966, 72 pp., paper.

Gamow, George, and Marvin Stern. *Puzzle-Math*. Viking, 1958, 119 pp.

Many old-time puzzles dressed up in smart new clothes.

Gardner, Martin. *Mathematics, Magic and Mystery*. Dover, 1955, 176 pp., paper.

Emphasis on manipulative tricks and parlor magic involving mathematics.

_____. *The Numerology of Dr. Matrix*. Simon, 1967, 112 pp.

Unusually stimulating.

_____. *The Unexpected Hanging and Other Mathematical Diversons*. Simon, 1969, 255 pp.

Gardner, Martin, ed. *Best Mathematical Puzzles of Sam Loyd*. vol. 1, Dover, 1959, 167 pp., paper; vol. 2, Dover, 1960, 175 pp., paper.

More than a hundred puzzles from Loyd's famous *Cyclopedia of 5,000 Puzzles, Tricks and Conundrums*, and a companion volume.

_____. *Martin Gardner's Sixth Book of Mathematical Games from Scientific American*. Freeman, 1971, 262 pp.

_____. *New Mathematical Diversions from Scientific American*. Simon, 1966, 253 pp.

The Third of a series of delightful companion volumes.

_____. *The Scientific American Book of Mathematical Puzzles and Diversions*. Simon, 1959, 178 pp., cloth and paper.

A sophisticated presentation of mathematical recreations.

_____. *The Second Scientific American Book of Mathematical Puzzles and Diversions*. Simon, 1961, 253 pp., cloth and paper.

A companion volume to the above; many new diversions, such as tetraflexagons, soma cubes, topology, and origami.

Golomb, Solomon W. *Polyominoes*. Scribner, 1965, 182 pp.

A fascinating study of a modern development in mathematical recreations; a classic.

Graham, L. A., ed. *Ingenious Mathematical Problems and Methods*. Dover, 1959, 237 pp., paper.

Collection of a hundred sophisticated puzzles contributed by scores of mathematicians to an industrial magazine during an 18-year period.

Greenblatt, M. H. *Mathematical Entertainments*. Crowell, 1965; Allen, 1968, 160 pp.

Haber, Philip, ed. *Mathematical Puzzles and Pastimes*. Pauper, 1957, 62 pp.

Heafford, Philip. *The Math Entertainer*. Emerson, 1959, 176 pp.

Heath, Royal V. *Mathemagic*. Dover, 1953, 138 pp., paper.

Number tricks for the parlor magician.

Hollis, Martin. *Tantalizers: A Book of Original Logical Puzzles*. Allen, 1970, 153 pp.

Hunter, J. A. H. *Fun with Figures*. Dover, 1956, 109 pp., paper.

Intriguing collection of arithmetical puzzles.

_____. *Math Brain Teasers*. Bantam, 1965, 147 pp., paper.

_____. *More Fun with Figures*. Dover, 1966, 116 pp., paper.

A sequel to *Fun with Figures* by the same author.

Hunter, J. A. H., and Joseph S. Madachy. *Mathematical Diversions*. Van Nostrand, 1963, 178 pp.

Hurley, James F., ed. *Litton's Problematical Recreations*. Van Nostrand, 1971, 337 pp.

A compilation of puzzles from the popular Litton booklets.

Jacoby, Oswald, and William H. Benson. *Mathematics for Pleasure*. McGraw, 1962, 191 pp.

Kaplan, Philip. *Posers: 80 Delightful Hurdles for Reasonably Agile Minds*. Harper, 1963, 86 pp; Macfadden, paper.

Kaufman, Gerald. *The Book of Modern Puzzles*. Dover, 1954, 188 pp., paper.

Kendall, P. M. H., and G. M. Thomas. *Mathematical Puzzles for the Connoisseur*. Crowell, 1964, 161 pp.

More than a hundred brainteasers, interestingly presented.

Kordemsky, Boris. *The Moscow Puzzles: 359 Mathematical Recreations*. Scribner, 1972, 309 pp.

Kraitchik, Maurice. *Mathematical Recreations*. 2d rev. ed. Dover, 1953, 328 pp.

A classic; for beginners and for experts; chess, bridge, roulette, Russian bank, dominoes, cryptograms, and many other diversions.

Krulik, Stephen. *A Handbook of Aids for Teaching Junior-Senior High School Mathematics*. Saunders, 1971, 120 pp.

A collection of useful games and devices, including tangrams, curve stitching, Tower of Hanoi, and the number-base calendar, among others.

Langman, Harry. *Play Mathematics*. Hafner, 1962, 216 pp.

A fresh approach to mathematical recreations.

Lausmann, Raymond. *Fun with Figures*. McGraw, 1965, 245 pp.

A collection of more than 400 problems and puzzles, chiefly involving number sequences and operations, trial-and-error methods, algebraic equations, and Diophantine analysis.

Leeming, Joseph. *Fun with Puzzles*. Lippincott, 1946, 213 pp.

_____. *More Fun with Puzzles*. Lippincott, 1947, 149 pp.

Linn, Charles F. *Puzzles, Patterns and Pastimes, from the World of Mathematics*. Doubleday, 1969, 136 pp.

One hundred and eighty-six puzzles, old and new.

Longley-Cook, L. H. *New Math Puzzle Book*. Van Nostrand, 1970, 176 pp.

_____. *Work This One Out: A Book of Mathematical Problems*. Benn, 1960, 95 pp.

Lukács, C., and E. Tarjan. *Mathematical Games*. Walker, 1968, 200 pp.

Madachy, Joseph S. *Mathematics on Vacation*. Scribner, 1966, 251 pp.

Maxwell, E. A. *Fallacies in Mathematics*. Cambridge, 1959, 95 pp., cloth and paper.

Fallacies in geometry, algebra, and calculus, with explanations.

Meyer, Jerome S. *Fun with Mathematics*. World, 1952, cloth; Fawcett, 1961, 176 pp., paper.

Meyer, Jerome, and Stuart Hanlon. *Fun with the New Math*. Hawthorn, 1967, 120 pp.

Mira, Julio A. *Mathematical Teasers*. B. and N., 1970, 279 pp.

Morris, Ivan. *The Riverside Puzzles*. Walker, 1969, 127 pp.

Mott-Smith, Geoffrey. *Mathematical Puzzles for Beginners and Enthusiasts*. 2d rev. ed. Dover, 1954, 248 pp., paper.

Fine collection of mathematical recreations, well presented.

Murray, William, and Francis Rigney. *Paper Folding for Beginners*. Dover, 1960, 95 pp., paper.

A revision of *Fun with Paper Folding* (1928).

Northrop, Eugene. *Riddles in Mathematics*. Van Nostrand, 1944, 262 pp.

Emphasis on mathematical paradoxes and fallacies, including paradoxes of logic, of probability, and of the infinite.

O'Beirne, T. H. *Puzzles and Paradoxes*. Oxford, 1965, 238 pp.

Phillips, Hubert [Caliban] . *My Best Puzzles in Logic and Reasoning*. Dover, 1961, 107 pp., paper.

An excellent collection of logic problems, almost all original.

_____. *My Best Puzzles in Mathematics*. Dover, 1961, 107 pp., paper.

_____. *Problems Omnibus* 2 vols. Arco, 1960, 1962.

Some 300 problems, mostly new.

Proskauer, Julien. *Puzzles for Everyone*. Harper, 1944, 176 pp.

Reinfeld, Don, and David Rice. *101 Mathematical Puzzles and How to Solve Them*. Sterling, 1960, cloth; Cornerstone, 1960, 123 pp., paper.

A collection consisting chiefly of arithmetical and algebraic story problems.

Rosenberg, Nancy. *How to Enjoy Mathematics with Your Child*. Stein, 1970, 186 pp.

Figurate numbers, magic squares, intuitive topology, flexagons, paper folding, etc.

Sackson, Sidney. *A Gamut of Games*. Random, 1969, 224 pp.

A collection of nearly 40 unfamiliar games, as well as brief reviews of 200 conventional games.

Schaaf, William L. *A Bibliography of Recreational Mathematics*. 2 vols. NCTM, 1970, 156 pp., 201 pp., paper.

A classified list of over 5,000 references.

Schuh, Fred. *The Master Book of Mathematical Recreations*. Translated by F. Gobrel; edited by T. H. O'Beirne. Dover, 1968, 430 pp., paper.

A classic; comprehensive and scholarly.

Scripture, Nicholas E. *Puzzles and Teasers*. Van Nostrand, 1970, 74 pp.

Silverman, David L. *Your Move*. McGraw, 1971, 221 pp.

A collection of tantalizing puzzles based on decision making; most of the 100 problems are accompanied by answers.

Simon, William. *Mathematical Magic*. Scribner, 1964, 187 pp.

A collection of mathematical tricks with numbers, calendars, playing cards, and other ordinary objects.

Sinkov, Abraham. *Elementary Cryptanalysis: A Mathematical Approach*. New Mathematical Library, no. 22. Random/Singer, 1969, 189 pp.

Addressed to high school students and laymen.

Sprague, Roland. *Recreation in Mathematics*. Dover, 1963, 61 pp., paper.

Steinhaus, Hugo. *Mathematical Snapshots*. Oxford, 1969, 311 pp.

New edition of a popular collection of mathematical recreations and ideas.

_____. *One Hundred Problems in Elementary Mathematics*. Basic, 1963, 174 pp.

A collection of unusual brain-crackers, most of them brand new.

Storme, Peter, and Paul Stryfe [Philip Stern and James R. Newman] . *How to Torture Your Friends*. Simon, 1941, 170 pp.

Delightful assortment of brainteasers, puzzles, fallacies, tricks, quizzes, and quips; attractively presented.

Straszewicz, Stefan. *Mathematical Problems and Puzzles from the Polish Mathematical Olympiads*. Pergamon, 1965, 367 pp.

Trigg, Charles W. *Mathematical Quickies*. McGraw, 1967, 210 pp.

Wylie, C. R., Jr. *101 Puzzles in Thought and Logic*. Dover, 1957, unpaged, paper.

Not the usual mathematical recreations; instead, puzzles of purely logical nature.

Science and Mathematics

Adler, Irving. *The Elementary Mathematics of the Atom*. Day, 1965, 160 pp.

Ahrendt, Myrl H. *The Mathematics of Space Exploration*. Holt, 1965, 160 pp., cloth and paper.

Asimov, Isaac. *Science, Numbers, and I*. Doubleday, 1968, 226 pp.

Beiser, Arthur. *Essential Math for the Sciences: Algebra, Trigonometry, and Vectors*. McGraw, 1969, 246 pp.

Barnett, Lincoln. *The Universe and Dr. Einstein*. New American, 1950, 140 pp., paper. 2d rev. ed. Harper, 1957, paper.

Bitter, Francis. *Mathematical Aspects of Physics: An Introduction*. Doubleday, 1963, 188 pp., paper.

Semitechnical; data gathering; analysis of data; design of experiments. Very readable.

Bochner, S. *The Role of Mathematics in the Rise of Science*. Princeton, 1966.

For mature readers.

Burger, Dionys. *Sphereland: A Fantasy about Curved Spaces and an Expanding Universe*. Crowell, 1965, 220 pp.

Coleman, James A. *Relativity for the Layman*. Frederick, 1958, 131 pp, New American, paper.

A very readable account; includes historical backgrounds.

Dantzig, Tobias. *Aspects of Science*. Macmillan, 1937, 285 pp.

Diamond, Solomon. *The World of Probability; Statistics in Science*. Basic, 1964, 193 pp.

Friedrichs, K. O. *From Pythagoras to Einstein*. Random, 1966, 88 pp., paper.

Gamow, George. *One, Two, Three . . . Infinity*. Rev. ed. Viking, 1961, 340 pp., cloth and paper.

Inviting discussion of significant ideas in mathematics and science.

Gardner, Martin. *The Ambidextrous Universe*. Basic, 1964, 294 pp.

Stimulating discussion of left-right, symmetry and asymmetry in plants and animals, crystals and molecules, fourth dimension, parity, and related topics.

_____. *Relativity for the Million*. Macmillan, 1962, 182 pp.; Pocket, paper.

Lucid exposition; minimum of mathematics; excellent illustrations.

Greenberg, Daniel A. *Mathematics for Introductory Science Courses: Calculus and Vectors*. Benjamin, 1965, 214 pp., cloth and paper.

Hawkins, David. *The Language of Nature: An Essay in the Philosophy of Science*. Freeman, 1964; 372 pp.

Scholarly and stimulating; excellent chapters on the nature of number, geometry, analysis, measurement, and probability; for mature readers.

Hooke, Robert, and Douglas Shaffer. *Math and Aftermath*. Walker, 1965, 233 pp.

How the applied mathematician bridges the gap between physical reality and mathematics by creating models; for mature readers.

Infeld, Leopold. *Albert Einstein: His Work and Its Influence on Our World*. Scribner, 1950, 132 pp., cloth and paper.

Katz, Robert. *An Introduction to the Special Theory of Relativity*. Van Nostrand, 1964, 132 pp., paper.

Kline, Morris. *Mathematics and the Physical World*. Crowell, 1959, 482 pp.

An illuminating survey of the relation of mathematics to science.

Kondo, Herbert. *Adventures in Space and Time: The Story of Relativity*. Holiday, 1966, 93 pp.

Lanczos, Cornelius. *Albert Einstein and the Cosmic World Order*. Interscience, 1965, 139 pp.

For mature readers.

Landau, L. D., and G. B. Rumer. *What Is Relativity?* Basic, 1961, 72 pp.
Suitable for grades 9-12.

Lieber, Lillian R. *The Einstein Theory of Relativity.* Illustrated by Hugo G. Lieber. Holt, 1945; 324 pp.
Unusual and lucid popular explanation; excellent for the amateur.

Marriott, F. H. C. *Basic Mathematics for the Biological and Social Sciences.* Pergamon, 1970, 229 pp.

Moore, Ruth. *Niels Bohr: The Man, His Science, and the World They Changed.* Knopf, 1966, 436 pp.

Nevanlinna, Rolf. *Space, Time and Relativity.* Translated from the German by Gordon Reece. Addison, 1968, 158 pp.
Excellent exposition; highly recommended.

Newman, James R. *Science and Sensibility.* 2 vols. Simon, 1961, 541 pp.
Anthology of essays, including the contributions of Newton, Laplace, Maxwell, Ramanujan, Pascal, Einstein, Russell.

Owen, George E. *Fundamentals of Scientific Mathematics.* Hopkins, 1961, 274 pp.; Harper, paper.

Reichenbach, Hans. *From Copernicus to Einstein.* Philosophical, 1942, 123 pp.

Ronan, Colin. *The Astronomers.* Hill, 1964, 232 pp.

Schwartz, Jacob T. *Relativity in Illustrations.* NYU, 1962, 117 pp.

Silverberg, Robert. *Men Who Mastered the Atom.* Putnam, 1965, 193 pp.

Smith, J. Maynard. *Mathematical Ideas in Biology.* Cambridge, 1968, 152 pp.

Wells, Alexander F. *The Third Dimension in Chemistry.* Oxford, 1956, 148 pp.
Application of geometry to molecular structure; transformations of rotation, translation, and reflection; sophisticated treatment.

Weyl, Hermann. *Philosophy of Mathematics and Natural Science.* Princeton, 1949, 311 pp.; Atheneum, 1963, paper.

Whitaker, E. T. *From Euclid to Eddington.* Dover, 1959, 224 pp., paper.

Arithmetic: Numeration, Computation, Structure

Adams, L. J. *Arithmetic for College Students.* Holt, 1961, 262 pp.

Adler, Irving. *A New Look at Arithmetic.* Day, 1964, 308 pp.

Andrews, F. Emerson. *New Numbers: How Acceptance of a Duo-Decimal Base (12) Would Simplify Mathematics.* Harcourt, 1944, 168 pp.

Asimov, Isaac. *Realm of Numbers.* Houghton, 1959, 200 pp.

Somewhat unconventional and inviting exposition; exceptionally lucid.

Bakst, Aaron. *Arithmetic for the Modern Age.* Van Nostrand, 1960, 341 pp.

Barlow, Fred. *Mental Prodigies.* Philosophical, 1952, 256 pp.

Discussion of arithmetical precocity, lightning calculators, chess experts, etc.

Bowers, Henry, and Joan Bowers. *Arithmetical Excursions: An Enrichment of Elementary Mathematics.* Dover, 1961, 320 pp., paper.

Computation; significant figures; averages; number theory; number lore.

Campbell, Howard E. *The Structure of Arithmetic.* Appleton, 1970, 244 pp.

A text that closely follows the recommendations of the CUPM for the training of elementary school teachers.

Dilson, Jesse. *The Abacus, a Pocket Computer.* St Martin's, 1968, 143 pp.

Duncan, Dewey C. *Arithmetic in a Liberal Education.* McGraw, 1969, 495 pp.

Of interest to readers of all ages.

Dutton, Wilbur H., Colin C. Petrie, and L. J. Adams. *Arithmetic for Teachers.* 2d ed. Prentice, 1970, 315 pp.

Fujii, John N. *Numbers and Arithmetic.* Blaisdell, 1965, 559 pp.

Gechtman, Murray, and James Hardesty. *Arithmetic: Concepts and Skills.* Macmillan, 1968, 272 pp.

Hull, T. E. *Introduction to Computing.* Prentice, 1966, 212 pp.

An introductory text suitable for freshman or sophomore courses; requires only high school mathematics; numerous exercises.

Japan Chamber of Commerce and Industry. *Soroban, the Japanese Abacus: Its Use and Practice.* Tokyo: Tuttle, 1967, 96 pp., paper.

An interesting home-study course; includes description of how to construct an abacus.

Kojima, Takashi. *Advanced Abacus: Japanese Theory and Practice.* Tokyo: Tuttle, 1963, 159 pp.

———. *The Japanese Abacus: Its Use and Theory.* Tuttle, 1954, 102 pp., paper.

Very clear and complete exposition.

Larsen, H. D., and H. G. Ludlow. *Arithmetic for Colleges.* Macmillan, 1963, 322 pp.

Lay, L. Clark. *The Study of Arithmetic.* Macmillan, 1966, 500 pp.

Logical approach to the fundamental concepts of arithmetic.

Layton, W. I. *College Arithmetic.* Wiley, 1971, 236 pp.

Ledbetter, David. *Elementary College Arithmetic.* Goodyear, 1969, 266 pp.

Minnick, John H., and Raymond C. Strauss. *Structure of Arithmetic.* Harper, 1966, 528 pp., paper.

Peterson, John A., and Joseph Hashisaki. *Theory of Arithmetic*. Wiley, 1967, 337 pp.

Piper, C. B. *Introduction to Arithmetic*. Philosophical, 1968, 211 pp.

Smeltzer, Donald. *Man and Number*. Emerson, 1958, 114 pp.

Delightfully illuminating.

Sunko, Theodore, and Milton Eulenberg. *Arithmetic: A College Approach*. Wiley, 1966, 225 pp.

Tocquet, Robert. *Magic of Numbers*. Wehman, 1960, 160 pp.

Mental arithmetic, memory tricks, calculating prodigies, etc.

Youse, B. K. *Arithmetic: A Modern Approach*. Prentice, 1963, 160 pp.

Algebra; Calculus; Analysis

Adelfio, Salvatore, and Christine Nolan. *Principles and Applications of Boolean Algebra*. Hayden, 1964, 362 pp.

Adler, Irving. *Groups in the New Mathematics*. Day, 1967, 274 pp.

Beckenbach, E. F., and Richard Bellman. *An Introduction to Inequalities*. New Mathematical Library, vol. 3. Random, 1961, 133 pp., paper.

Bowran, A. P. *A Boolean Algebra*. St. Martin's, 1965, 93 pp.

Burton, David A. *An Introduction to Abstract Mathematical Systems*. Addison, 1965, 120 pp.

Byrne, J. Richard. *Number Systems: An Elementary Approach*. McGraw, 1967, 291 pp.

Dean, Richard. *Elements of Abstract Algebra*. Wiley, 1966, 324 pp.

Emphasis on structural theorems for groups, rings, fields, and vector spaces; for advanced readers.

Dolciani, Mary, et al. *Modern Introductory Analysis*. Houghton, 1964, 651 pp.

Comprehensive, scholarly material appropriate for precalculus level.

Drobot, Stefan. *Real Numbers*. Prentice, 1964, 102 pp.

Based on lectures sponsored by NSF for secondary teachers; (1) concept of real numbers; (2) digital representations of real numbers; (3) approximations of real numbers by rationals; (4) cardinality and measures of sets of real numbers.

Drooyan, Irving, Walter H. Hadel, and Frank Fleming. *Elementary Algebra: Structure and Skills*. Wiley, 1966, 358 pp.

For first-year college and advanced precollege courses.

Dubisch, Roy. *Introduction to Abstract Algebra*. Wiley, 1965, 193 pp.

Dupree, Daniel E., and Frank L. Harmon. *Modern College Algebra*. Prentice, 1965, 250 pp.

Gehr, Merlyn J., and Dale G. Jungst. *Fundamentals of Mathematics: Number Systems and Algebra*. Academic, 1971, 419 pp.

Glicksman, Abraham M., and Harry Ruderman. *Fundamentals for Advanced Mathematics*. Holt, 1964, 651 pp.

Comprehensive, scholarly material appropriate for precalculus level.

Goodstein, R. L. *Boolean Algebra*. Pergamon, 1963, 140 pp.

Herberg, Theodore, *Elementary Mathematical Analysis*. Heath. 1962, 414 pp.

Hohn, Franz E. *Applied Boolean Algebra: An Elementary Introduction*. 2d ed. Macmillan, 1966, 139 pp., paper.

Appropriate for secondary school students.

Hosford, Philip L. *Algebra for Elementary Teachers*. Harcourt, 1968, 246 pp.

Kelley, John L. *Algebra: A Modern Introduction*. Van Nostrand, 1965, 335 pp.

Includes introduction to vector geometry and linear algebra. For advanced readers.

Kilmister, G. W. *Language, Logic, and Mathematics*. English, 1967, 124 pp.

Kleppner, Daniel, and Norman Ramsey. *Quick Calculus*. Wiley, 1965, 294 pp.

A short manual of self-instruction.

Korovkin, P. P. *Inequalities*. Blaisdell, 1961, 60 pp., paper.

Lankford, Francis, Donald Heikkinen, and Ina Silvey. *Numbers and Operations*. Harcourt, 1970, 461 pp.

A refresher course for secondary school pupils.

Lockwood, E. H. *A Book of Curves*. Cambridge, 1961, 198 pp.

Appropriate for self-directed study, for honor students in secondary schools, and for undergraduate college students.

McCoy, N. H. *Introduction to Modern Algebra*. Allyn, 1960, 304 pp.

MacDonald, Ian D. *The Theory of Groups*. Oxford, 1968, 254 pp.

McWeeny, Roy. *Symmetry: An Introduction to Group Theory and Its Applications*. Pergamon, 1963, 248 pp.

Comprehensive and readily understood.

Marjoram, D. T. E. *Exercises in Modern Mathematics*. Pergamon, 1964, 264 pp.

High school level.

_____. *Modern Mathematics in Secondary Schools*. Pergamon, 1964, 266 pp.

Includes Boolean algebra, groups, matrices, etc.

Meserve, Bruce E., A. J. Pettofrezzo, and Dorothy Meserve. *Principles of Advanced Mathematics*. Singer, 1964, 758 pp.

Meyer, Herman. *Precalculus Mathematics*. Van Nostrand, 1964, 365 pp.

Moise, Edwin. *The Number Systems of Elementary Mathematics.* Addison, 1965, 246 pp.

Moore, Charles G. *An Introduction to Continued Fractions.* NCTM, 1964, 95 pp., paper.

Moore, John T. *Elements of Abstract Algebra.* Macmillan, 1962, 203 pp.

Niven, Ivan. *Numbers: Rational and Irrational.* New Mathematical Library, vol. 1. Random, 1961, 136 pp., paper.

North, Roger. *The Art of Algebra: A Simplified Account of Numbers, Equations, Groups, and Continued Fractions.* Pergamon, 1965, 228 pp.

For the general reader. A reference work that fills the gap between popular expositions and more advanced texts.

O'Brien, Katharine. *Sequences.* Houghton, 1966, 90 pp.

Supplementary enrichment monograph.

Ohmer, M. M., C. V. Aucoin, and M. J. Cortez. *Elementary Contemporary Algebra.* Blaisdell, 1965, 238 pp.

Olds, C. D. *Continued Fractions.* New Mathematical Library, vol. 9. Random, 1963, 162 pp., paper.

Papy, Georges. *Groups.* St. Martin's, 1964, 220 pp.

Papy, Georges, and Frédérique Papy. *Modern Mathematics.* 2 vol. Macmillan, 1968-69, 459 pp., 435 pp.

An elementary "foundations" approach, regarding mathematics as a set of structures; for mature secondary school pupils.

Parker, Francis D. *The Structure of Number Systems.* Prentice, 1966, 137 pp.

Peressini, Anthony L., and Donald R. Sherbert. *Topics in Modern Mathematics for Teachers.* Holt, 1971, 434 pp.

Addressed to secondary school teachers; includes theory of numbers, graph theory, Boolean algebra, geometry of complex numbers, set theory, probability.

Ribenboim, Paulo. *Functions, Limits, and Continuity.* Wiley, 1964, 140 pp.

Emphasis on understanding concepts rather than calculations.

Roberts, Joseph B. *The Real Number System in an Algebraic Setting.* Freeman, 1962, 145 pp., paper.

For mature readers.

Robinson, Thomas. *Analytical Trigonometry.* Harper, 1967, 182 pp.

Rueff, M., and M. Jeger. *Sets and Boolean Algebra.* Allen, 1970, 192 pp.

A clear, rigorous comprehensible treatment of the elements of Boolean algebra; suitable for high school students.

Sawyer, W. W. *A Concrete Approach to Abstract Algebra.* Freeman, 1959, 234 pp., paper.

_____. *What Is Calculus About?* New Mathematical Library, vol. 2. Random, 1961, 118 pp., paper.

Scheid, Francis J. *Elements of Finite Mathematics*. Addison, 1962, 279 pp.

An introductory approach.

Schwartz, Jacob T. *Introduction to Matrices and Vectors*. McGraw, 1961, 163 pp.

Smith, Alton H., and W. A. Albrecht. *Fundamental Concepts of Analysis*. Prentice, 1966, 190 pp.

Snell, K. S., and J. B. Morgan. *Elementary Analysis*. 2 vols. Pergamon, 1966, 240 pp., 220 pp.

Sominskii, I. S. *The Method of Mathematical Induction*. Blaisdell, 1961, 57 pp., paper.

Spooner, G. A., and R. L. Mentzer. *Introduction to Number Systems*. Prentice, 1968, 339 pp.

Stanton, Ralph G., and Kenneth D. Fryer. *Topics in Modern Mathematics*. Prentice, 1964, 187 pp.

Based on seminars for secondary teachers; fields, groups, Boolean algebra, vector spaces, matrices, numerical analysis, probability and statistics, some types of geometry.

Toeplitz, Otto. *The Calculus, a Genetic Approach*. Chicago, 1963, 192 pp.

A historical introduction to the infinitesimal calculus; for mature readers.

Vilenkin, N. *Stories about Sets*. Academic, 1968, 152 pp.

Discussion of concepts such as cardinality of sets; curve; surface; and dimension. For able high school and college students.

Whitesitt, John E. *Boolean Algebra and Its Applications*. Addison, 1961, 182 pp.

Authoritative; includes many applications to switching circuits and simple games.

Wolstenholme, E. E. *Elementary Vectors*. Pergamon, 1964, 104 pp.

Yarnelle, John. *An Introduction to Transfinite Mathematics*. Heath, 1964, 66 pp., paper.

Informal, authoritative introduction to the fascinating concept of infinity.

Geometry; Vectors

Adler, Irving. *A New Look at Geometry*. Day, 1966, 416 pp.

Aref, M. N., and William Wernick. *Problems and Solutions in Euclidean Geometry*. Dover, 1968, 258 pp., paper.

A collection of some 700 challenging "originals"; solutions given for 200 of the problems.

Backman, Carl A., and Robert G. Cromie. *Introduction to Concepts of Geometry*. Prentice, 1971, 320 pp.

Informal, intuitive treatment.

Ballard, William R. *Geometry*. Saunders, 1970, 249 pp.

Résumé of plane and solid Euclidean geometry; measurements; coordinate geometry; non-Euclidean geometry; projective geometry; axiomatics; finite geometries.

Bassetti, F., H. Ruchlis, and D. Malament. *Math Projects: Polyhedral Shapes*. Book-Lab, 1968, 48 pp.

Blumenthal, Leonard M. *A Modern View of Geometry*. Freeman, 1961, 191 pp., paper.

For the advanced reader. Set theory, postulational systems, affine geometry, projective geometry, metric postulates, and non-Euclidean geometry.

Bold, Benjamin. *Famous Problems of Mathematics: A History of Constructions with Straight Edge and Compasses*. Van Nostrand, 1969, 112 pp.

Bouwsma, Ward D. *Geometry for Teachers*. Macmillan, 1972, 288 pp.

Intuitive approach; historical illustrations; map-making and other interesting topics.

Budden, F. J., and C. P. Wormell. *Mathematics through Geometry*. Pergamon, 1964, 230 pp.

Burger, Dionys. *Sphereland: A Fantasy about Curved Spaces and an Expanding Universe*. Crowell, 1965, 205 pp.

A worthy companion to Abbott's classic *Flatland: A Romance of Many Dimensions*.

Charosh, Mannis. *The Ellipse*. Crowell, 1971, 33 pp.

For young readers.

Choquet, Gustave. *Geometry in a Modern Setting*. Paris: Hermann, 1969, 142 pp. U.S. distributor, Houghton.

Designed for preservice and in-service secondary school teachers.

Court, N. A. *Modern Pure Geometry for High-School Mathematics Teachers*. Chelsea, 1969, 100 pp.

Coxeter, H. S. M. *An Introduction to Geometry*. Wiley, 1961, 443 pp.

Coxeter, H. S. M., and Samuel Greitzer. *Geometry Revisited*. New Mathematical Library, vol. 19. Random, 1967, 120 pp.

Cundy, H. Martyn, and A. P. Rollett. *Mathematical Models*. Oxford, 1967, 286 pp.

Diggins, Julia E. *String, Straightedge, and Shadow*. Viking, 1965, 160 pp.

A fresh and dramatic view of the history of geometry in ancient times.

Dorwart, Harold. *The Geometry of Incidence*. Prentice, 1966, 156 pp.

Eaves, J. C., and A. J. Robinson. *Introduction to Euclidean Geometry*. Addison, 1957, 327 pp.

Eccles, Frank M. *An Introduction to Transformational Geometry*. Addison, 1971, 177 pp.

For high school students, as well as prospective secondary school teachers.

Frame, J. S. *Solid Geometry*. McGraw, 1948, 339 pp.

Not a conventional textbook; original approach to three-dimensional space relations; maps and projections.

Friedrichs, K. O. *From Pythagoras to Einstein*. Random, 1966, 88 pp.

Fujii, John N. *Geometry and Its Methods*. Wiley, 1969, 371 pp.

Glicksman, Abraham M. *Vectors in Three Dimensional Geometry*. NCTM, 1961, 56 pp., paper.

A simple approach for the beginner.

Gradshtein, I. S. *Direct and Converse Theorems: The Elements of Symbolic Logic*. Pergamon, 1963, 173 pp.

Hemmerling, Edwin M. *Fundamentals of College Geometry*. Wiley, 1964, 401 pp.

Hilbert, D., and S. Cohn-Vossen. *Geometry and the Imagination*. Chelsea, 1952, 357 pp.

Holton, Jean L. *Geometry: A New Way of Looking at Space*. Weybright, 1971, 70 pp.

Hudson, Hilda P. *Ruler and Compass*. Chelsea, 1953.

Reissue: bound with A. B. Kempe, *How to Draw a Straight Line*; E. W. Hobson, *Squaring the Circle*; and others.

Jeger M. *Transformation Geometry*. Allen, 1966, 143 pp.

Johnson, Paul B. and Carol H. Kipps. *Geometry for Teachers*. Brooks, 1970, 262 pp.

Informal geometry.

Kazarinoff, Nicholas D. *Geometric Inequalities*. Random, 1961, 132 pp., paper.

Klein, Felix. *Famous Problems of Elementary Geometry*. Dover, 1956, 92 pp., paper.

Reissue of a well-known classic.

Kostovskii, A. N. *Geometrical Constructions Using Compasses Only*. Blaisdell, 1961, 79 pp., paper.

Levi, Howard. *Foundations of Geometry and Trigonometry*. Prentice, 1960, 347 pp.

Very rigorous, axiomatic approach; for mature readers.

Lines, L. *Solid Geometry*. Macmillan, 1935, 292 pp.; Dover, paper.

Polyhedrons; semiregular and star polyhedrons; crystal forms.

Loomis, Elisha Scott. *The Pythagorean Proposition*. NCTM, 1968, 284 pp.

Facsimile reproduction of the second edition, 1940; contains 256 proofs.

Maxwell, E. A. *Deductive Geometry*. Pergamon, 1963, 176 pp., paper.

———. *Geometry for Advanced Pupils*. Oxford, 1949, 176 pp.

Meserve, Bruce E. *Fundamental Concepts of Geometry*. Addison, 1955, 321 pp.

Meserve, Bruce E., and Joseph A. Izzo. *Fundamentals of Geometry*. Addison, 1969, 246 pp.

Moise, Edwin. *Elementary Geometry from an Advanced Standpoint.* Addison, 1963, 419 pp.

Ogilvy, C. Stanley. *Excursions in Geometry.* Oxford, 1969, 178 pp.

Ohmer, Merlin M. *Elementary Geometry for Teachers.* Addison, 1969, 152 pp.

Perfect, Hazel. *Topics in Geometry.* Pergamon, 1963, 153 pp., paper.

Modern geometry, including point transformations, geometry of the triangle, Ptolemy's theorem, Simson's line, projection, inversion, etc.

Prenowitz, Walter, and Meyer Jordan. *Basic Concepts of Geometry.* Blaisdell, 1966, 350 pp.

Rainich, G. Y., and S. M. Dowdy. *Geometry for Teachers.* Wiley, 1968, 228 pp.

Reid, Constance. *A Long Way from Euclid.* Crowell, 1963, 292 pp.

Expository, with accent on historical development.

Ringenberg, Laurence. *College Geometry.* Wiley, 1968, 308 pp.

———. *Informal Geometry.* Wiley, 1967, 151 pp.

Uses point-set approach throughout; for teachers of elementary school mathematics.

Robinson, Gilbert. *Vector Geometry.* Allyn, 1962, 176 pp.

Rosskopf, M. F., J. L. Levine, and B. R. Vogeli. *Geometry, a Perspective View.* McGraw, 1970, 306 pp.

Schuster, Seymour. *Elementary Vector Geometry.* Wiley, 1962, 213 pp.

Fairly advanced.

Shirokov, P. A. *A Sketch of the Fundamentals of Lobachevskian Geometry.* Stechert, 1964, 279 pp.

This is an introduction to Lobachevskian geometry intended for a wide range of readers.

Smart, James R. *Introductory Geometry: An Informal Approach.* 2d ed. Brooks, 1972, 317 pp.

Smogorzhevskii, A. S. *The Ruler in Geometrical Constructions.* Blaisdell, 1962, 86 pp., paper.

Sommerville, D. M. Y. *The Elements of Non-Euclidean Geometry.* Dover, 1958, 274 pp., paper.

———. *An Introduction to Geometry of N Dimensions.* Dover, 1958, 196 pp., paper.

For advanced students.

Stepelman, Jay. *Milestones in Geometry.* Macmillan, 1970, 124 pp.

Traditional discussion of major topics of geometry, but presented in a fresh, interesting manner.

Stover, Donald W. *Stereograms.* Houghton, 1966, 44 pp., paper.

Geometrical drawing, stereoscopic views, etc.

Stubblefield, Beauregard. *An Intuitive Approach to Elementary Geometry.* Brooks, 1969, 254 pp.

Appropriate for elementary school teachers.

Tuller, Annita. *A Modern Introduction to Geometries.* Van Nostrand, 1967, 201 pp.

Walter, Marion I. *Boxes, Squares, and Other Things: A Teacher's Guide for a Unit in Informal Geometry.* NCTM, 1970, 88 pp.

Weiss, Sol. *Geometry: Content and Strategy for Teachers.* Bogden, 1972, 424 pp.

Wolfe, H. E. *Introduction to Non-Euclidean Geometry.* Dryden, 1945, 247 pp.

Woolven, S. J. *Practical Geometry for Technical Drawing.* Cambridge, 1967, 256 pp.

Wylie, C. R. *Foundations of Geometry.* McGraw, 1964, 338 pp.

Yaglom, I. M. *Complex Numbers in Geometry.* Academic, 1966. 243 pp., paper.

———. *Geometric Transformations.* New Mathematical Library, vol. 8. Random, 1962, paper.

Appropriate for high school students.

Yale, Paul B. *Geometry and Symmetry.* Holden, 1968, 288 pp.

For mature readers; Euclidean, affine, and projective symmetries.

Yates, Robert C. *The Trisection Problem.* NCTM, 1971, 68 pp.

Facsimile reproduction of the 1942 edition; bibliography.

Young, John E., and Grace A. Bush. *Geometry for Elementary Teachers.* Holden, 1971, 273 pp.

Topology; Networks; Polyhedra; Fourth Dimension

Abbott, Edwin A. *Flatland: A Romance of Many Dimensions.* 2d rev. ed. Dover, 1952, 109 pp., paper.

Reissue of a well-known classic.

Aleksandrov, Pavel S. *Elementary Concepts of Topology.* Dover, 1961, 73 pp., paper.

Presents an approach off the beaten track.

Arnold, Bradford H. *Intuitive Concepts in Elementary Topology.* Prentice, 1962. 182 pp.

Bridges the gap between superficial "entertainment" topology and serious, abstract topology.

Barr, Stephen. *Experiments in Topology.* Crowell, 1964, 210 pp.

Bentley, W. A., and W. J. Humphreys. *Snow Crystals*. Dover, 1931, 227 pp., paper.

Collection of over 2,450 photographs, with an excellent expository introduction.

Berge, Claude. *The Theory of Graphs and Its Applications*. Wiley, 1962, 247 pp.

A comprehensive treatment of networks and their uses; algebraic topology; for advanced readers.

Bushaw, D. *Elements of General Topology*. Wiley, 1963, 166 pp.

Cameron, A. J. *A Guide to Graphs*. Pergamon, 1970, 158 pp.

☆ Coxeter, H. S. M. *Regular Polytopes*. 2d ed. Macmillan, 1963, 321 pp.

Polygons and polyhedra, regular and quasiregular solids, rotation groups, tessellations and honeycombs, the kaleidoscope, star polyhedra, ordinary polytopes, truncation, Euler's formula, and star polytopes.

Crown, A. W. *The Language of Triangles*. Vol. 1. Pergamon, 1964, 115 pp.

Cundy, H. Martyn, and A. P. Rollett. *Mathematical Models*. Oxford, 1952, 240 pp.

Paper folding, dissections, knots, curve stitching, polyhedra, models, linkages, and machines for drawing curves and for solving equations.

Eckhart, Ludwig. *Four-Dimensional Space*. Translated by A. L. Bigelow and S. M. Slaby. Indiana, 1968, 90 pp.

Representation of four-dimensional space by means of descriptive geometry (graphics).

Ehrenfeucht, Aniela. *The Cube Made Interesting*. Pergamon, 1964, 83 pp.

An unusual exposition of the symmetry of the cube, accompanied by helpful anaglyphs.

☆ Fejes Tóth, L. *Regular Figures*. Macmillan, 1964; Pergamon, 1964, 339 pp.

Comprehensive and rigorous treatment of isometries and plane ornaments; spherical arrangements; hyperbolic tessellations; regular and semiregular polyhedra; regular polytopes; packing and covering problems.

☆ Fujii, John N. *Puzzles and Graphs*. NCTM, 1966, 72 pp., paper.

☆ Gardner, Martin. *The Ambidextrous Universe*. Basic, 1964, 294 pp.

Entertaining and sophisticated discussion of left-right symmetry and related topics.

Gelfand, I. M., E. G. Glagoleva, and A. Kirillov. *The Method of Coordinates*. MIT, 1967, 69 pp., paper.

Includes an excellent discussion of four-dimensional space.

Hadwiger, Hugo, and Hans Debrunner. *Combinatorial Geometry in the Plane*. Holt, 1964, 113 pp.

An intuitive approach to the qualitative aspects of convex bodies.

Hilton, Harold. *Mathematical Crystallography and the Theory of Groups of Movements*. Dover, 1963, 262 pp., paper.

Symmetry; theory of groups; lattices and translations; geometrical operations; infinite groups of movements; regular groups; space partitioning. Advanced and very technical.

Johnson, Donovan A. *Curves in Space.* Exploring Mathematics on Your Own series. McGraw, 1963, 64 pp., paper.

Lindgren, Harry. *Geometric Dissections.* Van Nostrand, 1964, 165 pp.

Although some puzzles and solutions are included, it is not primarily a book on recreations, but rather a systematic treatment.

Manning, Henry P., ed. *The Fourth Dimension Simply Explained.* Dover, 1960, 251 pp., paper.

Unabridged reprint of first edition (1910) of a well-known collection of popular essays.

———. *Geometry of Four Dimensions.* Dover, 1956, 348 pp., paper.

Reissue of a well-known work, long out of print.

Marr, Richard F. *4-Dimensional Geometry.* Houghton, 1970, 41 pp.

Ore, Oystein. *Graphs and Their Uses.* New Mathematical Library, vol. 10. Random, 1963, 131 pp.

A thoroughly modern approach, dealing with mappings, trees, game theory, map coloring, etc.

Papy, Frédérique, and Georges Papy. *Graph Games.* Crowell, 1971, 33 pp.

For young readers.

Stover, Donald W. *Mosaics.* Houghton, 1966, 34 pp., paper.

Polygons, polyhedra, mosaics; bibliography.

Wenninger, Magnus J. *Polyhedron Models.* Cambridge, 1971, 207 pp.

Weyl, Hermann. *Symmetry.* Princeton, 1952, 168 pp.

Stimulating; charmingly written.

Theory of Numbers

Barnett, I. A. *Some Ideas about Number Theory.* NCTM, 1961, 80 pp., paper.

Introductory treatment.

Beiler, Albert H. *Recreations in the Theory of Numbers.* Dover, 1964, 349 pp., paper.

Bell, Eric T. *The Last Problem.* Simon, 1961, 308 pp.

A history of Fermat's last problem; for mature readers.

———. *The Magic of Numbers.* McGraw, 1946, 418 pp.

Davenport, Harold. *The Higher Arithmetic.* Harper, 1960, 172 pp., paper.

An introduction to the theory of numbers; for mature readers.

Friedberg, Richard. *An Adventurer's Guide to Number Theory.* McGraw, 1968, 217 pp.

Historically oriented; brisk, informal style.

Godino, Charles. *Elementary Topics in Number Theory.* Allyn, 1971, 170 pp.

Hoggatt, Verner E., Jr. *Fibonacci and Lucas Numbers.* Houghton, 1969, 92 pp., paper.

Hunter, John. *Number Theory.* Wiley, 1964, 149 pp.

Johnson, Donovan A., and W. H. Glenn. *Number Patterns.* Exploring Mathematics on Your Own series. Webster, 1960, 47 pp.

Jones, Burton. *Modular Arithmetic.* Blaisdell, 1964, 91 pp., paper.

LeVeque, William J. *Elementary Theory of Numbers.* Addison, 1962, 132 pp.

☆ Niven, Ivan, and H. S. Zuckerman. *An Introduction to the Theory of Numbers.* 2d ed. Wiley, 1966, 280 pp.

Ogilvy, C. S., and J. T. Anderson. *Excursions in Number Theory.* Oxford, 1966, 167 pp.

Olds, C. D. *Continued Fractions.* New Mathematical Library, vol. 9. Random, 1963, 162 pp., paper.

☆ Ore, Oystein. *Invitation to Number Theory.* New Mathematical Library, vol. 20. Random, 1969, 129 pp., paper.

Delightful; exceptionally lucid style.

Reichmann, W. J. *The Fascination of Numbers.* Oxford, 1957, 176 pp.

A popular exposition of many facets of number theory and related topics.

☆ Reid, Constance. *From Zero to Infinity: What Makes Numbers Interesting.* 3d ed. Apollo, 1961, 161 pp., paper. 3d rev. ed. Crowell, 1965, cloth.

An unusual and informal approach to the theory of numbers.

Taylor, L. F. *Numbers.* Faber, 1970, 153 pp.

Includes discussion of recurring decimals, series, prime numbers, Diophantine equations, finite arithmetic, and Fermat's theorem.

Vorob'iev (or Vorob'ev), N. N. *Fibonacci Numbers.* Blaisdell, 1962, 66 pp., paper; Heath, 1963, paper.

☆ Wisner, Robert J. *A Panorama of Numbers.* Scott, 1970, 176 pp.

Elementary number theory for fun.

Probability; Statistics

☆ Adler, Irving. *Probability and Statistics for Everyman.* New American, 1966, 256 pp., paper.

Bashaw, W. L. *Mathematics for Statistics.* Wiley, 1969, 350 pp.

Basic arithmetic and algebra refresher, with particular emphasis on inequalities, matrices, vectors, set operations, permutations and combinations, probability, logarithms, and graphs.

Borel, Emile. *Probabilities and Life.* Dover, 1962, 87 pp., paper.

Cardano, Girolamo. *The Book on Games of Chance.* Holt, 1961, 57 pp.

Cohen, John, and Mark Hansel. *Risk and Gambling.* Philosophical, 1956, 152 pp.

D'Arcy, J. A. *Chance and Choice.* Thames, 1968, 111 pp.

For nonmathematics students; probability tree, exponential growth curves, index numbers, game theory, etc.

☆ David, F. N. *Games, Gods and Gambling.* Hafner, 1962, 260 pp.

A history of the theory of probability.

Diamond, Solomon. *The World of Probability: Statistics in Science.* Basic, 1965, 193 pp.

Appropriate reading for senior high school students.

Dwass, Meyer. *First Steps in Probability.* McGraw, 1967, 282 pp.

Gnedenko, V. V., and A. Ya Khinchin. *An Elementary Introduction to the Theory of Probability.* Authorized ed. Freeman, 1961, 137 pp., paper.

☆ Huff, Darrell, and Irving Geis. *How to Lie with Statistics.* Norton, 1964, 142 pp.

Ingenious and illuminating.

———. *How to Take a Chance.* Norton, 1959, 173 pp.

Humorous commentaries on the vagaries of probability.

Johnson, Donovan A. *Probability and Chance.* Exploring Mathematics on Your Own series. Webster, 1963, 64 pp., paper.

King, Amy C., and C. B. Read. *Pathways to Probability: History of the Mathematics of Certainty and Chance.* Holt, 1963, 139 pp.

☆ Levinson, Horace. *Chance, Luck and Statistics.* Rev. and enl. ed. Dover, 1963, 358 pp., paper.

New edition of a book formerly called *The Science of Chance;* popular introduction for the layman.

Moskowitz, Martin M. *What Are the Chances? An Introduction to Probability.* Macmillan, 1963, 105 pp.

Mosteller, Frederick, R. E. K. Rourke, and G. B. Thomas. *Probability: A First Course.* Addison, 1961, 319 pp.

For mature readers.

☆ Niven, Ivan. *Mathematics of Choice, or How to Count without Counting.* Random, 1965, 202 pp., paper

Readable introduction to combinatorial analysis, permutations and combinations, partitions, distributions, probability, configuration problems, and mathematical induction.

Ore, Oystein. *Cardano, the Gambling Scholar.* Princeton, 1953, cloth; Dover, 249 pp., paper, Smith, cloth.

Razell, Arthur, and K. G. O. Watts. *Probability.* Doubleday, 1967, 50 pp.

An elementary introduction.

Reichmann, W. J. *Use and Abuse of Statistics.* Oxford, 1962, 336 pp.

A nonmathematical discussion of statistical methods, with emphasis on the design of experiments and the interpretation of statistical data.

Simpson, G., and F. Kafka. *Basic Statistics.* Norton, 1957, 521 pp.

An introductory course.

Slonim, Morris J. *Sampling.* Simon, 1967, 145 pp., paper.

Nontechnical overview of the field.

☆ Tanur, J., et al., eds. *Statistics: A Guide to the Unknown.* Holden, 1972, 448 pp., cloth and paper.

A unique, sophisticated exposition.

Thorp, Edward. *Elementary Probability.* Wiley, 1966, 152 pp.

Requires some knowledge of calculus.

Vesselo, Isaac R. *How to Read Statistics.* Van Nostrand, 1965, 208 pp.

Descriptive approach to the subject.

Walker, Helen, and Joseph Lev. *Elementary Statistical Methods.* Holt, 1958, 302 pp.

☆ Weaver, Warren. *Lady Luck: The Theory of Probability.* Doubleday, 1963, 392 pp., paper.

Popular as well as authoritative.

Slide Rule

Allen, R. K. *Systematic Slide Rule Technique.* Pitman, 1962, 126 pp.

☆ Asimov, Isaac. *An Easy Introduction to the Slide Rule.* Houghton, 1965, 188 pp.

Beakley, George C. *The Slide Rule and Its Use in Problem Solving.* 2d ed. Macmillan, 1969, 191 pp., paper.

Clason, Clyde B. *Delights of the Slide Rule.* Crowell, 1964, 246 pp.

Drooyan, Irving, and William Wooton. *Manual for the Slide Rule.* 2d ed. Wadsworth, 1969, 134 pp., paper

Ellis, John P. *The Theory and Operation of the Slide Rule.* Dover, 1961, 289 pp., paper.

☆ Graesser, R. F. *Understanding the Slide Rule.* Littlefield, 1963, 141 pp., paper.

☆ Johnston, C. L. *Slide Rule.* 5th ed. Brown, 1971, 36 pp.

Discusses both standard scales and special scales; a new edition of a well-known work.

Leach, H. W., and George Beakley. *The Slide Rule and Technical Problem Solving.* Macmillan, 1963; 130 pp., paper.

Marks, Robert W. *Simplifying the Slide Rule.* Bantam, 1964, 139 pp.

Ritow, Ira. *The Complete Book of Slide Rule Use.* Doubleday, 1963, 200 pp.

Sackheim, George. *How to Use a Slide Rule.* Harper, 1964, paper.

Computers and Automation; Linear Programming

Adams, J. Mack, and Robert Moon. *An Introduction to Computer Science.* Scott, 1970, 356 pp.

History and nature of computers; elementary discussion of computer languages, with special emphasis on FORTRAN.

☆ Adler, Irving. *Thinking Machines.* Day, 1961, 189 pp., cloth; New American, paper.

Andree, Richard. *Computer Programming and Related Mathematics.* Wiley, 1967, 284 pp.

Computer languages, programming logic, GOTRAN, FORTRAN, IBM 1620; introductory treatment.

Arnold, R. R., H. C. Hill, and A. V. Nicholas. *Introduction to Data Processing.* Wiley, 1966, 326 pp.

☆ Berkeley, Edmund C. *The Computer Revolution.* Doubleday, 1962, 249 pp., cloth; Scott, 1963, paper.

☆ Bernstein, Jeremy. *The Analytical Engine: Computers—Past, Present, and Future.* Random, 1965; Vintage, 1966; 113 pp.

Historical background; nontechnical introductory exposition of the design, construction, operation, and uses of computers; bibliography.

Bluemle, Andrew. *Automation.* World, 1963, 142 pp.

Very elementary exposition of binary system and of digital and analog computers.

Bolt, A. B. *We Built Our Own Computers.* School Mathematics Project Handbooks series. Cambridge, 1966, 101 pp.

Description of the experiences of five young boys in constructing simple circuits that simulate computers. Simple applications of symbolic logic and Boolean algebra.

Bolt, A. B., and M. E. Wardle. *Communicating with a Computer.* Cambridge, 1970, 80 pp., paper.

Written for the neophyte; short bibliography.

Budden, F. J. *An Introduction to Number Scales and Computers.* Longmans, 1965, 192 pp.

Includes some discussion of games and puzzles; discussion of computers rather brief.

Calingaert, Peter. *Principles of Computation.* Addison, 1965, 200 pp.

Good introduction to the field of automatic computation; excellent discussion of number bases, some material on analog computers, and a section on numerical approximation.

Davis, Morton C. *Game Theory: A Nontechnical Introduction.* Basic, 1970, 220 pp.

Good popularization; includes utility theory, nonzero sum games, and the *n*-person game.

Dawson, C. B., and T. C. Wool. *From Bits to If's: An Introduction to Computers and FORTRAN IV.* Harper, 1971, 157 pp.

Desmonde, William H. *Computers and Their Uses.* 2d ed. Prentice, 1971, 427 pp.

A useful reference book; discussion of economic, business, industrial, and social implications of computers, as well as the general nature of electronic computing, but excludes discussion of programming.

Dorn, William S., and Herbert J. Greenberg. *Mathematics and Computing; with FORTRAN Programming.* Wiley, 1968, 595 pp.

Feldman, Julian, and E. A. Feigenbaum, eds. *Computers and Thought.* McGraw, 1963, 535 pp.

Fenichel, Robert R., and Joseph Weizenbaum. *Computers and Computation: Readings from Scientific American.* Freeman, 1971, 283 pp., cloth and paper.

Ficken, F. A. *The Simplex Method of Linear Programming.* Holt, 1961, 58 pp.

Fink, Donald G. *Computers and the Human Mind: An Introduction to Artificial Intelligence.* Doubleday, 1966, 301 pp., paper.

Fry, T. F. *Computer Appreciation.* Philosophical, 1971, 237 pp.

Gardner, Martin. *Logic Machines and Diagrams.* McGraw, 1958, 157 pp., paper.

Historical survey.

Garvin, Walter W. *Introduction to Linear Programming.* McGraw, 1960, 281 pp.

George, F. H. *A Survey of Digital Computing.* Pergamon, 1968, 349 pp.

An introductory, programmed presentation for the beginner.

Glicksman, Abraham M. *An Introduction to Linear Programming and the Theory of Games.* Wiley, 1963, 131 pp., paper.

Excellent exposition, suitable for high school honor programs, for college students, for teachers, and for laymen.

Gruenberger, Fred, and Daniel D. McCracken. *Introduction to Electronic Computers: Problem Solving with the IBM 1620.* Wiley, 1963, 170 pp., paper.

Guilbaud, Georges T. *What Is Cybernetics?* Phillips, 1959, 126 pp.

Halacy, D. S., Jr. *Computers: The Machines We Think With.* Harper, 1962, 258 pp.

General and historical survey of both analog and digital computers and their uses.

Hellwig, J. *Introduction to Computers and Programming.* Columbia, 1969, 215 pp.

Excellent for beginners.

Hersee, Edward H. W. *A Simple Approach to Electronic Computers.* London: Blackie, 1962, 104 pp. Order from Gordon.

General; elementary treatment.

Hilton, Alice M. *Logic, Computing Machines, and Automation.* Spartan, 1963, 427 pp., cloth; Meridian, 1964, paper.

Hirsch, S. Carl. *This Is Automation.* Viking, 1964, 128 pp.

Hollingdale, S. H., and G. C. Tootill. *Electronic Computers.* Penguin, 1968, 336 pp., paper.

Jacobowitz, Henry. *Computer Arithmetic.* J. F. Rider, 1962, 128 pp.

Johnson, Donovan A., and W. H. Glenn. *Computing Devices.* Exploring Mathematics on Your Own series. Webster, 1961, 55 pp., paper.

Kemeny, John G. *Man and the Computer.* Scribner, 1972, 151 pp., paper.

Kenyon, Raymond. *I Can Learn about Calculators and Computers.* Harper, 1961, 112 pp.

Khinchin, A. I. *Mathematical Foundations of Information Theory.* Dover, 1957, 120 pp., paper.

Kohn, Bernice. *Computers at Your Service.* Prentice, 1962, 70 pp.

Kovach, Ladis. *Computer-oriented Mathematics: An Introduction to Numerical Methods.* Holden, 1964, 98 pp., paper

Elementary treatment of the ideas and techniques of numerical analysis; knowledge of high school mathematics presupposed.

Livesley, Robert K. *An Introduction to Automatic Digital Computers.* Cambridge, 1960, 55 pp.

Elementary, but rather interesting.

Lohberg, Rolf, and Theo. Lutz. *Computers at Work.* Sterling, 1969, 192 pp.

General discussion for laymen.

London, Keith. *Introduction to Computers.* Faber, 1970, 265 pp.

Basic facts about computers; nontechnical language; useful glossary.

Middleton, Robert G. *Computers and Artificial Intelligence.* Sams, 1969, 126 pp.

For the general reader.

National Council of Teachers of Mathematics. *Computer Oriented Mathematics.* NCTM, 1963, 216 pp.

Nikolaieff, George A., ed. *Computers and Society.* Wilson, 1970, 226 pp.

Nontechnical; overall perspective; extensive bibliography.

Porter, Arthur. *Cybernetics Simplified.* B. and N., 1969, 159 pp., paper.

Redish, Kenneth A. *An Introduction to Computational Methods.* Wiley, 1962, 211 pp.

Scientific American. *Information*. Freeman, 1966, 218 pp.

Twelve essays on the present and future of computers; discussion of information storage, retrieval, and transmission; system analysis; artificial intelligence; applications to science and technology.

Seligsohn, I. J. *Your Career in Computer Programming*. Messner, 1967, 222 pp.

Siegel, Paul. *Understanding Digital Computers*. Wiley, 1961, 403 pp.

Singh, Jagjit. *Great Ideas in Information Theory, Language, and Cybernetics*. Dover, 1966, 338 pp.

Smith, R. E. *The Bases of FORTRAN: A Self-Training Approach to Computer Programming*. Control, 1967, 253 pp.

Stuart, Fredric. *Introductory Computer Programming*. Wiley; 1966, 155 pp.

Taube, Mortimer. *Computers and Common Sense: The Myth of Thinking Machines*. Columbia, 1961, 136 pp.

Thomas, Shirley. *Computers*. Holt, 1965, 174 pp.

Trakhtenbrot, B. A. *Algorithms and Automatic Computing Machines*. Heath, 1963, 101 pp., paper.

Sophisticated and unusual approach to the theory of automatic computers.

von Neumann, John. *The Computer and the Brain*. Yale, 1958, 82 pp.

Critical and philosophical study of mathematical automata and of the human nervous system; for sophisticated readers.

Vorwald, Alan, and Frank Clark. *Computers! From Sand Table to Electric Brain*. Whittlesey, 1961, 176 pp.; McGraw, 1964.

Popular; very elementary treatment for beginners.

Westwater, F. L. *Teach Yourself Electronic Computers*. Dover, 1962, 151 pp.

Nonmathematical introduction for beginners and laymen.

Wooldridge, Roylance. *An Introduction to Computing*. Oxford, 1962, 217 pp.

Professional Books for Teachers

Mathematical Education; Trends; Curriculum; Administration

"Addresses at the First International Congress on Mathematical Education at Lyon; 24-31 August 1969." *Educational Studies in Mathematics*, vol. 2, no. 2/3, December 1969. Reidell.

Papers by twenty distinguished authors.

Aichele, Douglas B., and Robert E. Reys. *Readings in Secondary School Mathematics*. Prindle, 1971, 523 pp.

Collection of articles by mathematicians, educators, psychologists, researchers, and teachers; bibliography.

Association of Teachers of Mathematics [Great Britain]. *Mathematical Reflections: Contributions to Mathematical Thought and Teaching*. Cambridge, 1970, 250 pp.

Contains eighteen articles by leaders in British mathematical education; geometry is the unifying theme.

Begle, Edward G., ed. *Mathematical Education*, 69th Yearbook of the National Society for the Study of Education, pt. 1. Chicago, 1970, 467 pp.

Bidwell, James K. and Robert G. Clason. *Readings in the History of Mathematics Education*. NCTM, 1970, 706 pp.

Budden, F. J., and C. P. Wormell. *Mathematics through Geometry*. Pergamon, 1964, 240 pp.

Discusses curriculum aspects and educational value of geometry as a study.

Davis, Robert B. *The Changing Curriculum: Mathematics*. Chelsea, 1967, 88 pp., paper.

Deans, Edwina. *Elementary School Mathematics: New Directions*. U.S. Department of Health, Education, and Welfare. Office of Education, Bulletin 1963, no. 13, OE-29042. GPO, 1963, 116 pp., paper.

Educational Services Incorporated. *Goals for School Mathematics*. Houghton, 1963, 102 pp., paper.

The renowned report of the Cambridge Conference on School Mathematics; a controversial document, which looks courageously to the future.

Fehr, Howard F., ed. *Mathematical Education in the Americas: A Report on the First Inter-American Conference on Mathematical Education* (Bogotá, Colombia, 4-6 December 1961). Teachers, 1962, 180 pp., paper.

Felix, Lucienne. *Modern Mathematics and the Teacher*. Cambridge, 1966, 128 pp.

Glennon, Vincent J., and Leroy G. Callahan. *Elementary School Mathematics: A Guide to Curriculum Research*. 3d ed. Chelsea, 1968, 136 pp.

Henderson, George L. *Mathematics Supervisor's Handbook*. Merrill, 1971, 151 pp.

Husén, Torsten, ed. *International Study of Achievement in Mathematics: A Comparison of Twelve Countries*. 2 vols. Wiley, 1967, 304 pp., 368 pp.

International Commission of Mathematical Instruction. *New Trends in Mathematics Teaching*. Vol. 2. Unipub, 1970, 476 pp.

Jones, Phillip S., ed. *A History of Mathematics Education in the United States and Canada*. 32d Yearbook of the National Council of Teachers of Mathematics. NCTM, 1970, 557 pp.

Kemeny, John G. *Random Essays on Mathematics, Education and Computers*. Prentice, 1964, 163 pp.

Of interest to students, teachers, and administrators on the secondary school, as well as college, level.

Kemeny, John G., and Robin Robinson. *New Directions in Mathematics*. Prentice, 1963, 124 pp.

Proceedings of Dartmouth College Mathematics Conference, November 1961, on possible future developments in mathematical research and education.

Khinchin, A. Ya. *The Teaching of Mathematics*. Elsevier, 1968, 167 pp.

Kidd, Kenneth P., Shirley S. Myers, and David M. Cilley. *The Laboratory Approach to Mathematics*. SRA, 1970, 282 pp.

Lockard, J. David, ed. *Seventh Report of the International Clearinghouse on Science and Mathematics Curricular Developments*. Clearinghouse, 1970, 695 pp.

McIntosh, Jerry A., ed. *Perspectives on Secondary Mathematics Education*. Prentice, 1971, 259 pp., paper.

A collection of appropriate readings in contemporary secondary school mathematics, for prospective teachers.

Mobley, Jean B. *Supervision in Mathematics*. Scott, 1968, 128 pp., paper.

National Council of Teachers of Mathematics. *Evaluation in Mathematics*. 26th Yearbook. NCTM, 1961, 216 pp.

Postlethwaite, T. Neville. *School Organization and Student Achievement - «WUNESCO Institute for Education]*. Wiley, 1968, 146 pp.

A study based on achievement in mathematics in twelve countries.

Research and Development in Education: Mathematics. Proceedings of a National Conference on Needed Research in Education. 1968, 142 pp. Can be ordered from NCTM.

Scandura, Joseph M., ed. *Research in Mathematics Education*. NCTM, 1967, 125 pp., paper

Collection of eleven essays, eight of which report on recent research.

School Mathematics Study Group and Survey of Recent East European Mathematical Literature. *Soviet Studies in the Psychology of Learning and Teaching Mathematics*. 2 vols. Chicago, 1969, 216 pp., 128 pp., paper.

Scott, Lloyd. *Trends in Elementary School Mathematics*. Rand, 1966, 215 pp.

Secondary School Mathematics Curriculum Improvement Study, Bulletin no. 6. *Mathematics Education in Europe and Japan*. Teachers, 1971, 163 pp.

Servais, W., and T. Varga, eds. *Teaching School Mathematics*. Penguin, 1971, 308 pp., paper.

For advanced students of mathematics education; a UNESCO publication that stresses the European point of view.

Vesselo, I. R., ed. *The Further Training of Mathematics Teachers at the Secondary Level*. International Studies in Education, no. 22. Hamburg: UNESCO Institute for Education, 1969, 90 pp.

Report on international meeting on teacher training in various countries.

Vogeli, Bruce. *Soviet Secondary Schools for the Mathematically Talented.* NCTM, 1968, 100 pp., paper.

Wilson, J. W., and L. Ray Carry, eds. *Reviews of Recent Research in Mathematics Education.* SMSG Studies in Mathematics, vol. 19. Vroman, 1969, 194 pp.

Woodby, Lauren G. *Emerging Twelfth-Grade Mathematics Programs.* GPO, 1965, 40 pp.

Wooton, William. *SMSG: The Making of a Curriculum.* Yale, 1965, 182 pp.

Psychology of Learning Mathematics

Adler, Irving. *Mathematics and Mental Growth.* Day, 1968.

Chapman, L. R., ed. *The Process of Learning Mathematics.* Pergamon, 1972, 392 pp.

Cockcroft, W. H. *Your Child and Mathematics.* Wiley, 1968, 30 pp., paper.

Copeland, Richard W. *How Children Learn Mathematics: Teaching Implications of Piaget's Research.* Macmillan, 1970, 310 pp.

Dienes, Z. P. *Building Up Mathematics.* Humanities, 1960, 124 pp.

_____ *An Experimental Study of Mathematics Learning.* Humanities, 1963, 207 pp.

_____ *The Power of Mathematics.* Humanities, 1964, 176 pp.

Dienes, Z. P., and E. W. Golding. *Learning Logic, Logical Games.* Herder, 1966, 80 pp., paper.

Dienes, Z. P., and M. A. Jeeves. *Thinking in Structures.* Hutchinson, 1965, 128 pp.

Feldman, Leonard, ed. *Mathematical Learning: New Approaches to the Teaching of Young Children.* Gordon, 1969, 222 pp.

A collection of twelve articles from the *Bulletin* of the International Study Group for Mathematics Learning.

Fey, James T. *Patterns of Verbal Communication in Mathematics Classes.* Teachers, 1970 92 pp.

Flanagan, John C., Robert F. Mager, and William M. Shanner. *Mathematics Behavioral Objectives: A Guide to Individualizing Learning.* Westinghouse, 1971, 138 pp.

Gay, John, and Michael Cole. *The New Mathematics and an Old Culture.* Holt, 1967, 100 pp., paper.

A study of the learning of mathematics among the Kpella tribe of Liberia.

Kaye, Barrington. *Participation in Learning: A Progress Report on Some Experiments in the Training of Teachers.* Allen, 1970, 239 pp.

Kilpatrick, Jeremy, and Izaak Wirzup, eds. *Soviet Studies in the Psychology of Learning*. 2 vols. Vol. 1, *The Learning of Mathematical Concepts*. Vol. 2, *The Structure of Mathematical Abilities*. Vroman, 1969, 216 pp., 128 pp.

The K-13 Arithmetic-Algebra Committee. *K-13 Mathematics: Some Non-Geometric Aspects*. Pt. 2, *Computing, Logic, and Problem-Solving*. Toronto: Ontario Institute for Studies in Education, 1971, 61 pp.

Includes a survey of psychological learning theories.

Lee, Doris M. *A Background to Mathematical Development*. Oldbourne, 1962, 227 pp. Order from British Book Service.

Psychology-of-learning approach.

Lovell, K. *The Growth of Basic Mathematical and Scientific Concepts in Children*. London, 1961, 154 pp.

Leans heavily on the work of Piaget, Inhelder, and the Geneva school.

Lovell, Kenneth. *The Growth of Understanding in Mathematics: Kindergarten through Grade Three*. Holt, 1971, 204 pp.

Leans heavily on Piaget's theories.

National Council of Teachers of Mathematics. *The Slow Learner in Mathematics*. 35th Yearbook. NCTM, 1972, 528 pp.

_____. *The Learning of Mathematics*. 21st Yearbook. NCTM, 1953, 364 pp.

Osborn, Roger, M. V. DeVault, C. C. Boyd, and W. R. Houston. *Extending Understandings of Mathematics*. Merrill, 1969, 188 pp., paper.

Piaget, Jean. *The Child's Conception of Number*. Humanities, 1952, 248 pp., cloth; Norton, 1965, paper.

Piaget, Jean, and Bärbel Inhelder. *The Child's Conception of Space*. Humanities, 1948, 512 pp.

Piaget, Jean, Bärbel Inhelder, and A. Szeminska. *The Child's Conception of Geometry*. Basic, 1960, 411 pp., cloth; Harper, paper.

Pólya, György. *How to Solve It*. Doubleday, 1957, 253 pp., paper.

Stimulating discussion of the heuristic approach—"mathematics in the making."

_____. *Mathematics and Plausible Reasoning*. 2 vols. Vol. 1, *Induction and Analogy in Mathematics*. Vol. 2, *Patterns of Plausible Inference*. Oxford, 1954.

A sequel to *How to Solve It*, at a higher level.

_____. *On Understanding, Learning, and Teaching Problem Solving*. Vol. 1, *Mathematical Discovery*. Wiley, 1962, 216 pp.

Rosskopf, Myron F., Leslie P. Steffe, and Stanley Taback, eds. *Piagetian Cognitive-Development Research and Mathematical Education*. A conference report. NCTM, 1971, 243 pp.

Sealey, L. G. W. *The Creative Use of Mathematics in the Junior School*. Rev. ed. Blackwell, 1965, 104 pp.

Skemp, Richard R. *The Psychology of Learning Mathematics*. Penguin, 1972, 317 pp.

Wertheimer, Max. *Productive Thinking*. Harper, 1959, 320 pp.

Penetrating analysis of thought processes in mathematics; chapter on the area of a parallelogram is a classic; chapter on the sum of the angles of a polygon is brilliant.

Teaching Elementary School Mathematics

Allendoerfer, Carl B. *Principles of Arithmetic and Geometry for Elementary Teachers*. Macmillan, 1971, 672 pp.

Ashlock, Robert, and Wayne Herman, eds. *Current Research in Elementary School Mathematics*. Macmillan, 1970, 480 pp.

Association of Teachers of Mathematics [Great Britain]. *Notes on Mathematics in Primary Schools*. Cambridge, 1967, 340 pp.

Banks, J. Houston. *Elementary School Mathematics: A Modern Approach for Teachers*. Allyn, 1966, 398 pp.

_____. *Learning and Teaching Arithmetic*. 2d ed. Allyn, 1964, 405 pp.

A professionalized subject-matter approach.

Brumfiel, Charles, and Eugene Krause. *Elementary Mathematics for Teachers*. Addison, 1969, 436 pp.

Brumfiel, Charles F., and Irvin E. Vance. *Algebra and Geometry for Teachers*. Addison, 1970, 376 pp.

An integrated survey of algebra and geometry for elementary and junior high school teachers.

Buffie, Edward, R. C. Welch, and Donald Paige. *Mathematics: Strategies of Teaching*. Prentice, 1968, 230 pp., paper.

Of interest to teachers of elementary school mathematics.

Cambridge Conference on Teacher Training. *Goals for Mathematical Education of Elementary School Teachers*. Houghton, 1967, 138 pp., paper.

Collier, Calhoun C., and Harold E. Lerch. *Teaching Mathematics in the Elementary School*. Macmillan, 1969, 373 pp.

Copeland, Richard. *Mathematics and the Elementary Teacher*. Saunders, 1972, 400 pp.

Castle, Clyde G. *Teaching Mathematics in the Elementary School*. Ronald, 1964, 385 pp.

D'Augustine, Charles H. *Multiple Methods of Teaching Mathematics in the Elementary School*. Harper, 1968, 397 pp.

Dienes, Z. P. *The Elements of Mathematics*. Herder, 1971, 294 pp.

A textbook for prospective elementary teachers.

Dutton, Wilbur H. *Evaluating Pupils' Understanding of Arithmetic*. Prentice, 1964, 153 pp., paper.

Dwight, Leslie. *Modern Mathematics for the Elementary Teacher*. Holt, 1966, 598 pp.

Content and method.

Fehr, Howard, and J. M. Phillips. *Teaching Modern Mathematics in the Elementary School*. Addison, 1967, 448 pp.

Forbes, Jack E., and Robert E. Eicholz. *Mathematics for Elementary Teachers*. Addison, 1971, 528 pp.

Garstens, Helen, and Stanley Jackson. *Mathematics for Elementary School Teachers*. Macmillan, 1967, 512 pp.

Glennon, Vincent J., and Leroy G. Callahan. *Elementary School Mathematics: A Guide to Current Research*. 3d ed. Association for Supervision and Curriculum Development, 1968, 124 pp. Can be ordered from NCTM.

Bibliography.

Graham, Malcolm. *Modern Elementary Mathematics*. Harcourt, 1970, 418 pp.

A modern approach for prospective elementary school teachers.

Hartung, Maurice, Henry Van Engen, and James Stochl. *Foundations of Elementary School Arithmetic*. Scott, 1965, 450 pp.

Content rather than methodology.

Holmes, Emma E. *Mathematics Instruction for Children*. Wadsworth, 1968, 454 pp.

Howard, Charles F., and Enoch Dumas. *Teaching Contemporary Mathematics in the Elementary School*. Harper, 1967, 312 pp.

Kelley, John L., and Donald Richert. *Elementary Mathematics for Teachers*. Holden, 1970, 371 pp.

Kovach, Ladis D. *Introduction to Modern Elementary School Mathematics*. Holden, 1966, 256. pp.

Kramer, Klaas. *Teaching Elementary School Mathematics*. 2d ed. Allyn, 1970, 440 pp.

McFarland, Dora, and Eunice Lewis. *Introduction to Modern Mathematics for Elementary Teachers*. Heath, 1966, 406 pp.

Marks, J. L., C. R. Purdy, and L. B. Kinney. *Teaching Elementary School Mathematics for Understanding*. McGraw, 1965, 500 pp.

National Council of Teachers of Mathematics. *Mathematics for Elementary School Teachers*. 2 vols. Vol. 1, *Mathematics for Elementary School Teachers*. Vol. 2, *Mathematics for Elementary School Teachers: THE RATIONAL NUMBERS*. NCTM, 1966, 211 pp., cloth and paper; 1972, 446 pp., paper.

_____. *More Topics in Mathematics for Elementary School Teachers*. 30th Yearbook. NCTM, 1969, 584 pp.

Detailed, explicit, and comprehensive.

_____. *Topics in Mathematics for Elementary School Teachers*. 29th Yearbook. NCTM, 1964, 377 pp.

Olson, Waldemar. *Methods of Teaching Elementary School Mathematics*. Burgess, 1968, 273 pp.

Rappaport, David. *Understanding and Teaching Elementary School Mathematics*. Wiley, 1966, 228 pp.

Riedesel, C. Alan. *Guiding Discovery in Elementary School Mathematics*, Appleton, 1967, 491 pp.

Scandura, Joseph M. *Mathematics: Concrete Behavioral Foundations*. Harper, 1971, 459 pp.

For prospective elementary school teachers; content and methodology.

Schools Council for the Curriculum and Examinations. *Mathematics in Primary Schools: Curriculum Bulletin No. 1*. 2d ed. Her Majesty, 1966, 165 pp., paper.

Scott, Lloyd. *Trends in Elementary School Mathematics*. Rand, 1966, 215 pp.

Includes a comprehensive survey of major experimental projects as well as unsophisticated mathematical content.

Shah, Sair Ali. *Principles of the Teaching of Mathematics*. Longmans, 1966, 85 pp., paper.

Pamphlet dealing with grade placement and methods of teaching mathematics in the elementary school.

Spencer, Peter L., and Marguerite Brydegaard. *Building Mathematical Competence in the Elementary School*. Holt, 1966, 403 pp.

Spitzer, Herbert F. *Enrichment of Arithmetic*. McGraw, 1964, 576 pp.

Grades 1 through 8; collection of number games, puzzles, and recreations; exercises for exploration and discovery.

_____. *Teaching Elementary School Mathematics*. Houghton. 1967, 400 pp.

Starr, John W., III. *The Teaching of Mathematics in the Elementary School*. International, 1969, 378 pp.

Swenson, Esther J. *Teaching Arithmetic to Children*. Macmillan, 1964, 482 pp.

Thorpe, Cleata B. *Teaching Elementary Arithmetic*. Harper, 1962, 412 pp.

Vigilante, Nicholas J. *Mathematics in Elementary Education: Selected Readings*. Macmillan, 1969, 468 pp.

Volpel, Marvin C. *Concepts and Methods of Arithmetic*. Dover, 1965, 352 pp., paper.

Webber, G. C. *Mathematics for Elementary Teachers: An Introduction*. Addison, 1967, 165 pp., paper.

Westcott, Alvin M., and James A. Smith. *Creative Teaching of Mathematics in the Elementary School*. Allyn, 1967, 221 pp.

Teaching Secondary School Mathematics

Bassler, Otto C., and John R. Kolb. *Learning to Teach Secondary School Mathematics*. International, 1971, 434 pp.

Butler, C. H., and F. L. Wren. *The Teaching of Secondary Mathematics*. 4th ed. McGraw, 1968, 613 pp.

Crescimbeni, Joseph. *Teaching the New Mathematics*. Parker, 1966, 205 pp.

Dienes, Z. P., and E. W. Golding. *Approach to Modern Mathematics*. Herder, 1971, 173 pp.

A discussion, based on research, of learning and teaching mathematics.

Dubisch, Roy, and V. E. Howes. *The Teaching of Mathematics*. Wiley, 1963, 124 pp., paper.

Particularly useful to new teachers; excellent bibliography and source material.

Elliot, H. A., J. R. Maclean, and J. M. Jorden. *Geometry in the Classroom, New Concepts and Methods*. Holt (Canada), 1968, 266 pp.

Fawcett, Harold P., Kenneth Cummins. *The Teaching of Geometry from Counting to Calculus*. Merrill, 1970, 437 pp.

Félix, Lucienne. *Modern Mathematics and the Teacher*. Cambridge, 1966, 128 pp.

Fletcher, T. J., ed. *Some Lessons in Mathematics: A Handbook on the Teaching of "Modern" Mathematics*. Cambridge, 1964, 363 pp., paper.

An unusual and timely book. Topics discussed include binary arithmetic; sets and relations; movement geometry; vectors and matrices; numerical methods.

Fremont, Herbert. *How to Teach Mathematics in Secondary Schools*. Saunders, 1969, 571 pp.

Professionally, a very adequate text.

Howes, Virgil M., ed. *Individualizing Instruction in Science and Mathematics: Selected Readings on Programs, Practices, and Uses of Technology*. Macmillan, 1970, 192 pp.

Johnson, Donovan, and Gerald Rising. *Guidelines for Teaching Mathematics*. Wadsworth, 1967, 456 pp.

Khinchin, A. Ya., and B. V. Gnedenko. *The Teaching of Mathematics: Essays*. Translated from the Russian 1963 edition. Elsevier, 1968, 172 pp.

Krulik, Stephen. *A Handbook of Aids for Teaching Junior-Senior High School Mathematics*. Saunders, 1971, 120 pp.

Kuppuswami Aiyangar, N. *The Teaching of Mathematics in the New Education*. 4th ed. Universal, 1964.

Land, F. W., ed. *New Approaches to Mathematics Teaching*. St. Martin's, 1963, 152 pp., paper.

Marjoram, D. T. E. *Modern Mathematics in Secondary Schools*. Pergamon, 1964, 266 pp.

Professionalized subject matter. Includes set theory, Boolean algebra, groups, matrices, vectors, inequalities, linear programming, statistics, and methods of teaching these topics.

McIntosh, Jerry, ed. *Perspectives on Secondary Mathematics Education*. Prentice, 1971, 259 pp.

Sawyer, W. W. *Vision in Elementary Mathematics*. Vol. 1, *Introducting Mathematics*. Pengiun, 1964, 346 pp., paper.

Of interest to junior high school teachers; a synthesis of content and method.

Sobel, Max. *Teaching General Mathematics*. Prentice, 1967, 128 pp.

Thwaites, Bryan. *On Teaching Mathematics*. Pergamon, 1961, 116 pp., paper.

Willoughby, Stephen S. *Contemporary Teaching of Secondary School Mathematics*. Wiley, 1967, 430 pp.

Activities; Projects; Enrichment; Contests; Visual Aids

Bruyr, Donald. *Geometrical Models and Demonstrations*. Walch, 1964, 173 pp.

Curves, surfaces, solids, instruments, etc.; over 150 diagrams.

Burkill, J. C., and H. M. Cundy. *Mathematical Scholarship Problems*. Cambridge, 1961, 118 pp.

Cameron, A. J. *Mathematical Enterprises for Schools*. Pergamon, 1966, 188 pp.

Excellent source for enrichment purposes.

Charosh, Mannis, ed. *Mathematical Challenges*. NCTM, 1965, 135 pp., paper.

A collection of problems for students in grades 7 through 12.

Cordell, Christobel. *Dramatizing Mathematics*. Walch, 1963, 170 pp.

Collection of seventeen skits, contests, etc., suitable for math club and assembly programs.

Dienes, Z. P., and E. W. Golding. *Sets, Numbers, and Powers*. Herder, 1966, 122 pp., paper.

Practical suggestions for lessons and games to help develop these ideas; a second volume to a handbook.

Hess, Adrien L. *Mathematics Projects Handbook*. Heath, 1962. 60 pp., paper.

Bibliographic and source materials for typical projects and exhibits.

Humphrey, James H., and Dorothy D. Sullivan. *Teaching Slow Learners through Active Games*. Thomas, 1970, 184 pp.

Consists of three chapters respectively devoted to reading, science, and mathematics; describes over 100 games, emphasizing both the concepts and their applications.

Johnson, Donovan A. *Games for Learning Mathematics*. Walch, 1963, 176 pp.

Description of seventy games involving arithmetic, algebra, and geometry.

Johnson, Donovan, C. H. Lund, and W. D. Hamerston. *Bulletin Board Displays for Mathematics*. Dickenson, 1967, 99 pp.

Kapur, J. N. *Suggested Experiments in School Mathematics*. 2 vols. 2d ed. Karol Bagh, New Delhi: Arya Book Depot, 1969, 144 pp., 232 pp.

Experiments, grouped by topics, to help children grasp modern mathematical concepts.

Kenna, L. A. *Understanding Mathematics, with Visual Aids*. Littlefield, 1962, 174 pp., paper.

Discusses wooden models, string models, curve stitching, paper folding, etc.

Kennedy, Leonard M. *Models for Mathematics in the Elementary School*. Wadsworth, 1967, 209 pp., paper.

Kidd, Kenneth P., Shirley S. Myers, and David M. Cilley. *The Laboratory Approach to Mathematics*. SRA, 1970, 281 pp.

Krulik, Stephen. *A Mathematics Laboratory Handbook for Secondary Schools*. Saunders, 1972, 107 pp., paper.

Milgrom, H., and H. Ruchlis. *Math Projects: Mathematical Shapes*. Book-Lab, 1968, 48 pp.

National Council of Teachers of Mathematics. *Enrichment Mathematics for the Grades*. 27th Yearbook. NCTM, 1963, 368 pp.

Bibliographies: "Mathematics for the Gifted," pp. 6-14; "A Graded List of Readers," pp. 195-204; "Mathematics Booklist for School Libraries," pp. 331-40.

_____. *Enrichment Mathematics for High School*. 28th Yearbook. NCTM, 1963, 388 pp.

Bibliographies: "Mathematics for the Gifted," pp. 6-16; "Mathematics Booklist for School Libraries," pp. 379-88.

_____. *Instructional Aids in Mathematics*. 34th Yearbook. NCTM, 1973, 442 pp.

_____. *The Trisection Problem*. NCTM, 1971, 68 pp.

Ransom, William R. *Thirty Projects for Mathematical Clubs and Exhibitions*. Walch, 1961, student manual, 84 pp., paper; teacher manual, 50 pp.

A list of somewhat unusual topics.

Salkind, Charles T., ed. *The Contest Problem Book*. New Mathematical Library, vol. 5. Random, 1961, 154 pp., paper.

Collection of problems from the annual high school contests of the Mathematical Association of America.

_____. *The MAA Problem Book II*. Random, 1966, 112 pp.

A collection of problems from the annual high school mathematics contests.

Schicker, Joseph S. *P-T Aids to Mathematics*. Vantage, 1965, 91 pp.

School Mathematics Study Group. *Puzzle Problems and Games Project: Final Report*. Studies in Mathematics, vol. 18. SMSG, 1968, 218 pp.

Shklarsky (or Shkliarskii), D. O., et al. *The U.S.S.R. Olympiad Problem Book*. Freeman, 1962, 452 pp., paper.

Straszewicz, S. *Mathematical Problems and Puzzles from the Polish Mathematical Olympiads*. Pergamon, 1965, 367 pp.

Turner, Ethel M. *Teaching Aids for Elementary Mathematics*. Holt, 1966, 149 pp., paper.

A source book of teaching aids and learning activities.

Mathematics for Parents

Adler, Irving. *A New Look at Arithmetic*. Day, 1964, 309 pp.

Allendoerfer, Carl B. *Mathematics for Parents*. Macmillan, 1964, 178 pp., paper.

Balmer, Alfred, and Sheila Slade. *Essentials of Modern Mathematics*. Cambridge Book, 1964; Washington, 1965, 179 pp.

Barker, Charles M., H. Curran, and M. Metcalf. *The New Math for Teachers and Parents of Elementary School Children*. Fearon, 1964, 102 pp., paper.

Begle, Edward, ed. *Very Short Course in Mathematics for Parents*. SMSG, 1963, 68 pp., paper.

Blaney, Rosemarie. *Teaching New Mathematics in the Elementary Schools*. Teachers Practical Press, 1964, 64 pp.

Broudy, Rose L. *Modern Math Made Easy: A Simple Approach to the New Math*. Harvey, 1970, 126 pp.

Addressed to parents; also, supplementary reading for pupils and teachers.

Clark, Frank. *Contemporary Math for Parents*. Watts, 1966, 144 pp.

Clarkson, Donald R., and Robert Hansen, eds. *Understanding Today's Mathematics*. Rev. ed. Shoe String, 1964, 265 pp.

Cwirka, Charles S. *Modern Math for Modern Parents*. Walch, 1965, 92 pp., paper.

Engler, David. *Helping Your Child Learn the New Arithmetic*. Criterion, 1961, 160 pp.

Feldzamen, A. N. *Numbers and Such*. Prentice, 1968, 294 pp.

A "popularized," humorous survey of modern elementary mathematics.

Heimer, Ralph, and Miriam Newman. *The New Mathematics for Parents*. Holt, 1965, 128 pp.

Kempf, Albert, and T. E. Barnhart. *Modern Elementary Mathematics: A Parent's Guide to the New Concepts*. Doubleday, 1965, 182 pp.

Layton, R. B. *A Parent's Introduction to the New Mathematics for the Elementary School*. Jackson, Miss.: Office Supply Co., 1964, 42 pp., paper.

Matthews, Herbert. *Modern Mathematics: A Primer for Parents*. Graphic, 1965, 62 pp., paper.

May, Lola J. *Major Concepts of Elementary Modern Mathematics*. Colburn, 1962, 60 pp., paper.

Mueller, Francis J. *Understanding the New Elementary School Mathematics (A Parent-Teacher Guide)*. Dickenson, 1965, 164 pp.

Phelps, Jack. *Elementary Mathematics–Theory and Practice*. Brooks, 1970, 115 pp., paper.

Brief treatment of the "new" mathematics; very elementary; short bibliography and glossary; for parents or teachers.

Phillips, Harry L., and Marguerite Kluttz. *Modern Mathematics and Your Child*. U.S. Department of Health, Education, and Welfare, Office of Education, Pamphlet no. 29047. GPO, 1963, 28 pp.

Quast, W. Garfield. *New Math for Parents and Pupils*. Arc, 1967, 129 pp., paper.

A very brief discussion of some topics in the elementary school mathematics curriculum.

Rosenthal, Evelyn B. *Understanding the New Mathematics*. Hawthorn, cloth; Fawcett, 1964, 240 pp., paper.

Sharp, Evelyn. *A New Mathematics Reader*. Dutton, 1958, 240 pp.

An informal presentation of "modern" mathematics for teen-agers as well as grown-ups.

_____. *A Parent's Guide to More New Math*. Pocket, 1967, 164 pp., paper.

_____. *A Parent's Guide to the New Mathematics*. Dutton, 1964, 180 pp., cloth; Pocket, paper.

Sloan, R. W. *An Introduction to Modern Mathematics*. Prentice, 1960, 73 pp.

White, Stephen. *Students, Scholars and Parents*. Doubleday, 1966, 143 pp.

Dictionaries and Handbooks

Baker, Cyril C. T. *Dictionary of Mathematics*. Nelson, 1961; Hart, 1966; 352 pp., cloth and paper.

Concise, but fairly comprehensive.

Bendick, Jeanne, and Marcia Levin. *Mathematics Illustrated Dictionary*. McGraw, 1965, 223 pp.

Fact, figures, and people—including the "new math."

Garcia, Mariano. *Mathematics Dictionary: Spanish-English/English-Spanish*. Hobbs, 1965, 78 pp., paper.

Herland, Leo. *Dictionary of Mathematical Sciences*. Vol. 1; *German-English*. 2d rev. ed. Ungar, 1951, 235 pp.

Hyman, Charles J. *German-English Mathematics Dictionary*. Consultants Bureau (div. of Plenum), 1960, 131 pp.

James, Glenn, and Robert C. James, eds. *Mathematics Dictionary*. 2d ed. Van Nostrand, 1959, 546 pp.

Authoritative; multilingual edition (French, German, Russian, Spanish); more than just a word dictionary; could be described as a "correlated condensation of mathematical concepts."

Karush, William. *The Crescent Dictionary of Mathematics*. Macmillan, 1962, 313 pp.

McDowell, C. H. *A Short Dictionary of Mathematics (Arithmetic, Algebra, Plane Trigonometry and Geometry)*. Cassell, 1961; Littlefield, 1962, 103 pp., paper.

For beginning students.

MacIntyre, Sheila, and Edith Witte. *German-English Mathematical Vocabulary*. 2d ed. Interscience, 1966, 95 pp.

Marks, Robert W. *The New Mathematics Dictionary and Handbook*. Bantam, 1964, 186 pp., paper.

Includes thumbnail biographical sketches and tables, in addition to the dictionary proper.

Merritt, Frederick S. *Mathematics Manual*. McGraw, 1962, 378 pp.

Methods and principles of various branches of mathematics for reference, review, and problem solving.

Millington, T. A., and W. Millington. *Dictionary of Mathematics*. Cassell, 1966, 259 pp.

Pemberton, John E. *How to Find Out in Mathematics*. Pergamon, 1963, 158 pp., paper; Macmillan, 1964, paper.

A practical guide to sources of mathematical information, including careers, encyclopedias, dictionaries, periodicals, bibliographies, mathematical tables, mathematical societies. A unique and extremely useful book; should be in every library.

Universal Encyclopedia of Mathematics. Simon, 1964, cloth; New American, 1964, 715 pp., paper.

More than a mere dictionary; contains numerous formulas, tables, synopses, methods, and illustrative examples with solutions.

Yates, Robert C. *A Handbook on Curves and Their Properties*. J. W. Edwards, 1947, 245 pp.

Paperback Series

Contemporary School Mathematics. Houghton.

First Series.

1. *Sets and Logic 1*. C. A. R. Bailey.
2. *Matrices 1*. G. Matthews.
3. *Computers 1: With an Introduction to Binary Arithmetic*. F. B. Lewis.
4. *Shape, Size and Place 1*. A. C. Reynolds

Second Series.

1. *Sets and Logic 2*. C. A. R. Bailey.
2. *Matrices 2*. G. Matthews.
3. *Computers 2*. F. B. Lewis.
4. *An Introduction to Probability and Statistics*. A. J. Sherlock.

Experiences in Mathematical Discovery. See "Publications of the NCTM."

Exploring Mathematics on Your Own. Webster. Authors: Donovan A. Johnson, William H. Glenn, and M. Scott Norton.

1. *Sets, Sentences, and Operations*. Johnson and Glenn.
2. *The Pythagorean Theorem*. Glenn and Johnson.
3. *Invitation to Mathematics*. Johnson and Glenn.
4. *Understanding Numeration Systems*. Johnson and Glenn.
8. *The World of Statistics*. Johnson and Glenn.
9. *Short Cuts in Computing*. Glenn and Johnson.
10. *The World of Measurement*. Johnson and Glenn.
12. *Computing Devices*. Johnson and Glenn.
13. *Probability and Chance*. Johnson.
14. *Curves in Space*. Johnson.
15. *Logic and Reasoning in Mathematics*. Johnson.
16. *Geometric Constructions*. Norton.
17. *Basic Concepts of Vectors*. Norton.
18. *Finite Mathematical Systems*. Norton.

Mathematics Enrichment Series. Houghton.

Sequences. Katherine E. O'Brien.
Stereograms. Donald W. Sharp. *Mosaics*. Donald W. Stover.
Introduction to the Theory of Numbers. Ronald R. Edwards.
Induction in Mathematics. Louise Johnson Rosenbaum.
Legislative Apportionment. Albert E. Meder, Jr.
Topics from Inversive Geometry. Albert E. Meder, Jr.
Fibonacci and Lucas Numbers. Verner E. Hoggatt, Jr.
Four by Four. Ernest R. Ranucci.
Graphs, Groups, and Games. Augustus H. Fox.
Four-Dimensional Geometry. Richard F. Marr.
The Conics – A Geometric Approach. Donald W. Stover.

More Topics in Mathematics for Elementary School Teachers. See "Publications of the NCTM."

New Mathematical Library. SMSG. Singer.

1. *Numbers: Rational and Irrational*. Ivan Niven. 136 pp.
2. *What Is Calculus About?* W. W. Sawyer. 118 pp.
3. *Introduction to Inequalities*. E. Beckenbach and R. Bellman. 133 pp.
4. *Geometric Inequalities*. N. D. Kazarinoff. 132 pp.

5. *The Contest Problem Book*. Charles T. Salkind. 154 pp.
6. *The Law of Large Numbers*. P. J. Davis. 165 pp.
7. *Uses of Infinity*. Leo Zippin. 151 pp.
8. *Geometric Transformations*. I. M. Yaglom. 133 pp.
9. *Continued Fractions*. C. D. Olds. 162 pp.
10. *Graphs and Their Uses*. Oystein Ore. 131 pp.
11. *Hungarian Problem Book I* (Eötvös Competitions, 1894-1905). 111 pp.
12. *Hungarian Problem Book II* (Eötvös Competitions, 1906-1928). 120 pp.
13. *Episodes from the Early History of Mathematics*. Asger Aaboe. 133 pp.
14. *Groups and Their Graphs*. I. Grossman and W. Magnus. 195 pp.
15. *Mathematics of Choice*. Ivan Niven. 202 pp.
16. *From Pythagoras to Einstein*. K. O. Friedrichs. 80 pp.
17. *The Contest Problem Book II*. C. T. Salkind.
18. *First Concepts of Topology*. W. G. Chinn and N. E. Steenrod. 161 pp.
19. *Geometry Revisited*. H. S. M. Coxeter and S. Greitzer. 120 pp.
20. *Invitation to Number Theory*. Oystein Ore.
21. *Geometric Transformations II*. I. M. Yaglom.
22. *Elementary Cryptanalysis*. Abraham Sinkov. 198 pp.
23. *Ingenuity in Mathematics*. Ross Honsberger. 204 pp.

Reprint Series, SMSG. Order from Vroman.

Each of these pamphlets is devoted to a particular topic in mathematics and contains reprints of articles selected from a variety of journals.

The Structure of Algebra
Prime Numbers and Perfect Numbers
What Is Contemporary Mathematics?
Mascheroni Constructions
Space, Intuition and Geometry
Nature and History of Pi
Computation of Pi
Mathematics and Music
The Golden Measure
Geometric Constructions
Memorable Personalities in Mathematics: Nineteenth Century
Memorable Personalities in Mathematics: Twentieth Century
Finite Geometry
Infinity
Geometry, Measurement and Experience

Supplementary and Enrichment Series, SMSG. Order from Vroman.

Most of these pamphlets were designed to allow teachers to try short modern treatments of particular mathematics topics in class and are no longer needed. Some, however, were designed for independent study or enrichment. These are still available.

Algebraic Structures
Radioactive Decay
Mathematical Theory of the Struggle for Life
1 + 1 = 1
Order and The Real Numbers: A Guided Tour
The Mathematics of Trees and Other Graphs

Thinking with Mathematics. Heath.

Mathematics Projects Handbook. A. L. Rees. 66 pp.
An Introduction to Linear Programming. J. D. Bristol. 72 pp.
The Natural Numbers. Richard L. Sprecher. 72 pp.

The Integers. Richard L. Spreckelmeyer. 70 pp.
The Real Numbers. Richard L. Spreckelmeyer. 64 pp.
The Complex Numbers. Richard L. Spreckelmeyer. 64 pp.
The Rational Numbers. John E. Varnelle and Richard L. Spreckelmeyer. 80 pp.
Finite Mathematical Structures. John E. Varnelle. 72 pp.
An Introduction to Transfinite Mathematics. John E. Varnelle. 72 pp.
Congruence and Motion in Geometry. Walter Prenowitz and Henry Swann. 96 pp.

Topics in Mathematics for Elementary School Teachers. See "Publications of the NCTM."

Topics in Mathematics: Translations from the Russian (Survey of Recent East European Mathematical Literature). Heath.

Algorithms and Automatic Computing Machines. B. A. Trakhtenbrot. 110 pp.
Areas and Logarithms. A. I. Markushevich. 54 pp.
Computation of Areas of Oriented Figures. A. M. Lopshits. 64 pp.
Configuration Theorems. B. I. Argunov and L. A. Skornyakov. 48 pp.
Equivalent and Equidecomposable Figures. V. G. Boltyanskii. 76 pp.
The Fibonacci Numbers. N. N. Vorobyov. 56 pp.
How to Construct Graphs. G. E. Shilov. Bound with *Simplest Maxima and Minima Problems*. I. P. Natanson. 64 pp.
Hyperbolic Functions. V. G. Shervatov. 64 pp.
Induction in Geometry. L. I. Golovina and I. M. Yaglom. 112 pp.
The Method of Mathematical Induction. I. S. Sominskii. 56 pp.
Modules in Geometric Proofs. Ya. S. Dubnov. 64 pp.
Proof in Geometry. A. I. Fetisov. 64 pp.
Summation of Infinitely Small Quantities. I. P. Natanson. 68 pp.
What Is Linear Programming? A. S. Barsov. 120 pp.
Multicolor Problems. E. B. Dynkin and V. A. Uspenskii. 72 pp.
Problems in the Theory of Numbers. E. B. Dynkin and V. A. Uspenskii. 120 pp.
Random Walks. E. B. Dynkin and V. A. Uspenskii. 86 pp.
Eight Lectures on Mathematical Analysis. A. Ya. Khinchin. 240 pp.
Convex Figures and Polyhedra. A. A. Lyusternik. 191 pp.
Infinite Series. A. I. Markushevich. 160 pp.

Publications of the NCTM

Yearbooks

Twenty-third: *Insights into Modern Mathematics*. 1957, 440 pp.

Twenty-fourth: *The Growth of Mathematical Ideas, Grades K-12*. 1959, 507 pp.

Twenty-fifth: *Instruction in Arithmetic*. 1960, 366 pp.

Twenty-sixth: *Evaluation in Mathematics*. 1961, 236 pp.

Discusses evaluation of instruction.

Twenty-seventh: *Enrichment Mathematics for the Grades*. 1963, 368 pp., cloth and paper.

Material beyond the usual curriculum, suitable for classroom or independent study. Extensive bibliographies.

- Twenty-eighth: *Enrichment Mathematics for High School*. 1963, 388 pp.

  Extends and deepens knowledge of talented students in the high school and beyond. Extensive bibliographies.

- Twenty-ninth: *Topics in Mathematics for Elementary School Teachers*. 1964, 377 pp.

- Thirtieth: *More Topics in Mathematics for Elementary School Teachers*. 1969, 584 pp.

- Thirty-first: *Historical Topics for the Mathematics Classroom*. 1969, 524 pp.

  A substantial treatment of the use of the history of mathematics in the teaching of mathematics. Significant historical material presented in a form designed specifically for classroom use.

- Thirty-second: *History of Mathematics Education in the United States and Canada*. 1970, 557 pp.

  Reviews issues and forces related to mathematics curricula and instruction in grades K-12 from colonial days to the present time.

- Thirty-third: *The Teaching of Secondary School Mathematics*. 1970, 433 pp.

  Forces shaping today's mathematics program are described, teaching for special outcomes is discussed, then examples demonstrate classroom applications, with emphasis on teacher planning.

- Thirty-fourth: *Instructional Aids in Mathematics*. 1973, 442 pp.

  Contains information on the growing spectrum of available instructional aids, suggestions for selecting and evaluating these materials, and guidance in how to use them; designed to stimulate teachers in how to use them.

- Thirty-fifth: *The Slow Learner in Mathematics*. 1972, 528 pp.

  Provides ideas for teaching the slow learner at all levels and deals with subject matter objectives while emphasizing methods for attaining them; discusses various programs, activities, approaches, and lesson plans.

General Publications

Audiovisual Materials in Mathematics. Joseph A. Raab. 1971, 90 pp.

Films, filmstrips, loops, transparencies, and video tapes listed according to subject matter and mode of presentation; codes indicate length, color or black and white, audience level, distributors.

A Bibliography of Recreational Mathematics. William L. Schaaf. 2 vols. 1970, 148 pp., 191 pp.

Lists 5,000 works under 110 headings. Vol. 1 lists the best of the literature through the early sixties; vol. 2 contains completely new material.

Boxes, Squares, and Other Things: A Teacher's Guide for a Unit in Informal Geometry. Marion I. Walter. 1970, 80 pp.

Helps elementary school children visualize two- and three-dimensional objects and introduces geometric transformations, symmetry, group theory, may be adapted to the secondary level.

Computer-assisted Instruction and the Teaching of Mathematics. Report of a national conference. 1969, 152 pp.

In-depth discussions of the present status and future prospects of computer-assisted instruction.

Computer Facilities for Mathematics Instruction. 1967, 47 pp.

Information on educational uses.

Computer Oriented Mathematics. 1963, 204 pp.

Presents basic principles of automated computation as they relate to mathematics; ideas for classroom use, problems, solutions, bibliography, glossary, and index.

The Continuing Revolution in Mathematics. 1968, 166 pp.

Reports on the gains that have been made and the problems still to be solved in bringing mathematics instruction up to date. Jointly published with the NASSP.

Experiences in Mathematical Discovery. 1966, 1967, 1970, 1971.

A general-mathematics series using the discovery approach for the non-college bound.
(1) *Formulas, Graphs, and Patterns.* 60 pp.
(2) *Properties of Operations with Numbers.* 38 pp.
(3) *Mathematical Sentences.* 35 pp.
(4) *Geometry.* 98 pp.
(5) *Arrangements and Selections.* 50 pp.
Answers for Units 1-5. 129 pp.
(6) *Mathematical Thinking.* 55 pp.
(7) *Rational Numbers.* 72 pp.
(9) *Positive and Negative Numbers.* 56 pp.

Experiences in Mathematical Ideas. 2 vols. *Teaching Package* for each volume. 1970, 197 pp., 235 pp.; *Teaching Package,* 131 pp., 154 pp.

Designed to help teachers stimulate slow learners in grades 5-8, this unique project combines each text for teacher use with a laboratory-oriented package of loose-leaf sheets to be duplicated for student worksheets, overhead-projector transparancies, and activity materials. Profusely illustrated.

Five Little Stories. William W. Strader. 1960, 16 pp.

Entertaining. Presents mathematical ideas to challenge students of various ages.

The High School Mathematics Library. 5th ed. William L. Schaaf. 1973, pp. 76.

This fifth edition brings up to date a popular annotated bibliography first published in 1960. More than 950 entries cover the principal areas of today's high school mathematics.

☆ *Historical Topics in Algebra.* 1971, 72 pp.

Paperback publication of a portion of *Historical Topics for the Mathematics Classroom* (31st Yearbook) makes widely available this material on algebra; valuable to both teachers and students.

How to Study Mathematics: A Handbook for High School Students. Henry Swain. 1970, 27 pp.

Suggestions about doing homework, making the most of class periods, and taking tests. This revised and updated version has a new section on specific topics.

How to Use the Overhead Projector in Mathematics Education. Stephen Krulik and Irwin Kaufman. 1966, 28 pp.

Illustrated.

How to Use Your Bulletin Board. Donovan A. Johnson and C. E. Olander. 1953, 11 pp.

In-Service Education in Elementary School Mathematics. 1967, 55 pp.

Developed by an NCTM committee both for directors of in-service programs and for teachers in self-directed study.

Introduction to an Algorithmic Language (BASIC). 1968, 49 pp.

An introduction to computer programming in the simple language BASIC and three examples of computer application in the classroom illustrate the usefulness of computers in teaching mathematics.

An Introduction to Continued Fractions. Charles G. Moore. 1964, 96 pp.

A lucid exposition of continued fractions, their properties and practical applications.

Mathematical Challenges: Selected Problems from the Mathematics Student Journal. Compiled and annotated by Mannis Charosh. 1965, 135 pp.

A variety of challenging problems not usually met in the classroom.

Mathematics and My Career. Nura D. Turner, ed. 1971, 54 pp.

Seven former MAA contest winners discuss the usefulness of mathematics in their widely differing careers. Encourages young people to study mathematics even if they expect to work in another field.

Mathematics for Elementary School Teachers. 1966, 211 pp.

This text is coordinated with the series of films with the same title but is complete in itself.

Mathematics for Elementary School Teachers: THE RATIONAL NUMBERS. 1972, 460 pp.

An extension of the film/text series.

Mathematics Library—Elementary and Junior High School. Clarence Ethel Hardgrove and Herbert F. Miller. 1968, 50 pp.

Revised and enlarged annotated bibliography of enrichment books, classified by level.

Mathematics Teaching as a Career. Revised 1971, 8 pp.

A leaflet discussing the questions that students ask about careers in this field.

Mathematics Tests Available in the United States. Sheldon S. Myers and Floyd G. Delon. 1968, 23 pp.

Lists tests by author, grade levels and forms, availability of norms, publisher, reference in *Mental Measurements Yearbook*, original and latest publication dates.

Numbers and Numerals. David Eugene Smith and Jekuthiel Ginsburg. 1937, 52 pp.

An illustrated account of the history of numbers.

Number Stories of Long Ago. David Eugene Smith. 1969, 152 pp.

Delightful account of the probable history of numbers illustrated in full color. Originally published in 1919 and reissued in hardback as one of the Classics in Mathematics Education.

The Number Story. Herta T. and Arthur H. Freitag. 1960, 76 pp.

The story of numbers, from prehistoric ideas to modern concepts, for secondary students and their teachers.

Paper Folding for the Mathematics Class. Donovan A. Johnson. 1957, 32 pp.

Fully illustrated. This popular booklet, for learning and recreation, is in its eighth printing.

Piagetian Cognitive-Development Research and Mathematical Education. 1971, 243 pp.

Papers presented at a conference sponsored by the NCTM and Columbia University to increase cooperation between mathematics educators and psychologists.

Polyhedron Models for the Classroom. Magnus J. Wenninger. 1966, 43 pp.

Directions for constructing models, with notes on the history and mathematics of polyhedra. Over 40 illustrations.

A Portrait of 2. Lawrence A. Ringenberg. Revised 1964, 42 pp.

Several concepts of the number 2 in modern number theory.

Puzzles and Graphs. John N. Fujii. 1966, 65 pp.

A collection of geometric puzzles for recreation and intellectual stimulation. Clues to solutions and more than 90 illustrations.

The Pythagorean Proposition. Elisha S. Loomis. 1968, 306 pp.

A historical review, presenting 370 demonstrations of the Pythagorean theorem. Reissued as the first volume in the series Classics in Mathematics Education.

Readings in Geometry from the Arithmetic Teacher. Marguerite Brydegaard and James E. Inskeep, Jr., eds. 1970, 121 pp.

Guidance for teaching K-8 geometry is given in articles reflecting a new concept of geometry for the elementary school. An informal approach emphasizes the learner's spatial environment and his intuitive grasp of ideas such as position, distance, size, and shape.

Readings in the History of Mathematics Education. James K. Bidwell and Robert G. Clason, eds. 1970, 706 pp.

A volume of source materials, independent of, but complementary to, the 32d Yearbook. Contains committee reports and other primary source documents commonly cited but not readily available.

The Revolution in School Mathematics. 1961, 90 pp.

Account of the nature of developments in secondary mathematics programs during the late 1950s.

School Mathematics Contests: A Report. Howell L. Gruver. 1968, 41 pp.

A compilation of information on school mathematics contests in the United States. Includes samples of rules, procedures, and contest questions.

Secret Codes, Remainder Arithmetic, and Matrices. Lyman C. Peck. 1961, 54 pp.

Fun with secret codes to introduce ideas from modern mathematics. Bibliography.

Some Ideas about Number Theory. I. A. Barnett. 1961, 71 pp.

An informal account of some of the more elementary results of number theory. Applications for the classroom are included.

Soviet Secondary Schools for the Mathematically Talented. Bruce R. Vogeli. 1968, 100 pp.

Describes the programs of Soviet secondary schools offering specialization in mathematics.

Teaching Mathematics in the Elementary School—What's Needed! What's Happening! 1970, 121 pp.

Jointly published with the NAESP. Directed toward elementary school principals and mathematics specialists but also helpful to teachers and parents.

Topics in Mathematics for Elementary School Teachers.
First Series. 1964.

A series of booklets, each giving the key principles for an understanding of a particular topic. (Also available as the 29th Yearbook.)

No. 1: *Sets.* 47 pp.
No. 2: *The Whole Numbers.* 54 pp.
No. 3: *Numeration Systems for the Whole Numbers.* 31 pp.
No. 4: *Algorithms for Operations with Whole Numbers.* 34 pp.
No. 5: *Numbers and Their Factors.* 48 pp.
No. 6: *The Rational Numbers.* 72 pp.
No. 7: *Numeration Systems for the Rational Numbers.* 46 pp.
No. 8: *Number Sentences.* 45 pp.

Second Series. 1968, 1969.

An extension of the subject matter of the earlier series as well as some specialized and more advanced topics. (Also available as the 30th Yearbook.)

No. 9: *The System of Integers.* 66 pp.
No. 10: *The System of Rational Numbers.* 74 pp.
No. 11: *The System of Real Numbers.* 45 pp.
No. 12: *Logic.* 50 pp.
No. 13: *Graphs, Relations, and Functions.* 85 pp.
No. 14: *Informal Geometry.* 66 pp.
No. 15: *Measurement.* 45 pp.
No. 16: *Collecting, Organizing, and Interpreting Data.* 42 pp.
No. 17: *Hints for Problem Solving.* 61 pp.
No. 18: *Symmetry, Congruence, and Similarity.* 46 pp.

The Trisection Problem. Robert C. Yates. 1971, 68 pp.

A treatise on one of the three famous problems of antiquity, with bibliography. Reissued as volume 3 in the series Classics in Mathematics Education.

20th Century Algebra in High School. Richard V. Andree. 1968, 25 pp.

Discusses modern algebra, especially the proof method, and explains matrix and group theories and their applications in modern technology.

Publications from Other Organizations

Chips from the Mathematical Log. Mu Alpha Theta. 1966, 96 pp.

Articles on upto-date topics written so that a gifted high school student can understand them.

More Chips from the Mathematical Log. 1970, 87 pp.

Elementary School Mathematics: A Guide to Current Research. Vincent J. Glennon and Leroy G. Callahan. 1968, 124 pp.

Surveys research on curriculum, the child, the learning environment, and teaching methods. Bibliography.

Mathematics Teaching with Special Reference to Epistemological Problems. Robert B. Davis. 1967, 71 pp.

One of the major papers presented at the 1967 Conference on Needed Research in Mathematics Education.

Research and Development in Education: Mathematics. 1967, 142 pp.

A report of the conference on Needed Research in Mathematics Education. Major papers, reaction papers, and a synthesis of group discussions are included.

Teaching Elementary School Mathematics. Herbert F. Spitzer. 1970, 31 pp.
What Research Says to the Teacher series, no. 2.

Teaching Secondary School Mathematics. Kenneth B. Henderson. 1969, 32 pp.
What Research Says to the Teacher series, no. 9.

Periodicals and Journals

American Mathematical Monthly. (10 issues a year; membership subscription $8, nonmembers, $15.) Mathematical Association of America, 1225 Connecticut Ave., NW, Washington, D.C. 20036.

The Arithmetic Teacher. (8 a year; membership subscription $9, institutional $10.) Editor, Jane M. Hill. National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Va. 22091.

Australian Mathematics Teacher. (3 a year; 15 shillings.) Teachers' College, Newton, Sydney, Australia.

Delta. ($2.) R. S. Luthar, University of Wisconsin, Janesville, Wis. 53545.

Educational Studies in Mathematics. (4 a year; $14, institutions $22.50.) Editor, H. Freudenthal. Mathematical Institute, University of Utrecht, The Netherlands. D. Reidell Publishing Co., P.O. Box 17, Dordrecht, Holland.

The Fibonacci Quarterly. (5 a year; $6.) St. Mary's College, Calif. 94575.

International Journal of Mathematical Education in Science and Technology. (4 a year; $15.60.) Wiley-Interscience, Chichester, Sussex, England.

Investigations in Mathematics Education: A Journal of Abstracts and Annotations. (No fee.) Jon L. Higgins, Center for Science and Mathematics Education, Ohio State University, 1945 N. High St., Columbus, Ohio 43210.

Journal for Research in Mathematics Education. (4 a year; $6.) Editor, David C. Johnson. National Council of Teachers of Mathematics, 1906 Association Drive, Reston Va. 22091.

Journal of Recreational Mathematics. (4 a year; $10.) Baywood Publishing Co., 43 Central Dr., Farmingdale, N.Y. 11735.

Journal of Structural Learning. (4 a year; membership subscription, $7.50; institutional, $19.50.) Editor, Zoltan P. Dienes. Published for the International Study Group for Mathematics Learning. Gordon & Breach, Science Publishers, 150 Fifth Ave., New York, N.Y. 10011.

Journal of Undergraduate Mathematics. (2 a year; $3.) Mathematics Department, Guilford College, Greensboro, N.C. 27410.

Mathematical Gazette. (4 a year; 21 shillings.) Mathematical Association, Gorden House, 29 Gorden Sq., London, W.C. 1, England.

Mathematical Log. (3 a year; free to member institutions.) Journal of Mu Alpha Theta, national high school and junior college mathematics club. Box 504, University of Oklahoma, Norman, Okla. 73069.

Mathematical Spectrum: A Magazine of Contemporary Mathematics. (Annual subscription, $1.20.) Oxford University Press, The University, Sheffield S3-7RH, England.

Mathematics in School. (6 a year; £3.) Longman Group, Journals Division, 33 Montgomery St., Edinburgh EH7 5JX, Scotland.

Mathematics Magazine. (5 a year; $4.) Mathematical Association of America, 1225 Connecticut Ave., NW, Washington, D.C. 20036..

Mathematics Student Journal. (4 a year; 5 subscriptions for $2.50.) National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Va. 22091.

The Mathematics Teacher. (8 a year; membership subscription $9, institutional $10.) Editor, Carol V. McCamman. National Council of Teachers of Mathematics, 1906 Association Drive, Reston, Va. 22091.

Mathematics Teaching. (4 a year; 30 shillings.) Association of Teachers of Mathematics. Vine Street Chambers, Nelson, Lancashire, England.

Nico. (3 a year; 300 Belgian francs.) Centre Belge de Pédagogie de la Mathématique. 1180-Bruxelles, Avenue Albert 224, Belgium.

The Pentagon. (2 a year; $2 for two years.) Kappa Mu Epsilon, Central Michigan College, Mt. Pleasant, Mich. 48858.

Pi Mu Epsilon Journal. (2 a year; $2 for two years.) University of Oklahoma, 100 Asp Ave., Norman, Okla. 73069.

Pythagoras. (6 a year; 8s. 6d. or $1.02.) Fanfare Educational Publishing Co., Fanfare House, 174 Chingford Mount Road, London, E.4, England.

Recreational Mathematics Magazine. No longer published. See *Journal of Recreational Mathematics.*

School Science and Mathematics. (9 a year; membership subscription $5, institutional $8.) Central Association of Science and Mathematics Teachers, P.O. Box 246, Bloomington, Ind. 47401.

Scientific American. (12 a year; $6.) 415 Madison Ave., New York, N.Y. 10017.

Scripta Mathematica. (4 a year; $4.) Yeshiva University, Amsterdam Ave. and 186th St., New York, N.Y. 10033.

University of Oklahoma Mathematics News Letter. (4 a year; 5 subscriptions for $1.) University of Oklahoma, Norman, Okla. 73069.

Appendix: Directory of Publishers

Abelard. Abelard-Schuman, 257 Park Ave. South, New York, N.Y. 10010.

Academic. Academic Press, 111 Fifth Ave., New York, N.Y. 10003.

Addison. Addison-Wesley Publishing Co., 508 South St., Reading, Mass. 01867.

Aldine. Aldine-Atherton, 529 S. Wabash Ave., Chicago, Ill. 60605.

Allen. G. Allen & Unwin (London). Order from Macmillan.

Allyn. Allyn & Bacon, 470 Atlantic Ave., Boston, Mass., 02210.

American Book. American Book Co., 450 W. 33d St., New York, N.Y. 10001.

American Education. American Education Publications, Xerox Education Group, Education Ctr., Columbus, Ohio 43216.

American Technical. American Technical Society, 848 E. 58th St., Chicago, Ill. 60637.

Apollo. Apollo Editions, 425 Park Ave. South, New York, N.Y. 10016.

Appleton. Appleton-Century-Crofts, 440 Park Ave. South, New York, N.Y. 10016.

Arc. Arc Books. Order from Arco Publishing Co., 219 Park Ave. South, New York, N.Y. 10003.

Arco. Arco Publications, 29 Great Portland St., London, W.1, England.

Arnold. Edward Arnold, 41 Maddox St., London, W.1, England.

Atheneum. Atheneum Publishers, 122 E. 42d St., New York, N.Y. 10017.

B. and N. Barnes & Noble, 105 Fifth Ave., New York, N.Y. 10003.

Bantam. Bantam Books, 666 Fifth Ave., New York, N.Y. 10019.

Barnes. A. S. Barnes & Co., Forsgate Dr., Cranbury, N.J. 08512.

Basic. Basic Books, 404 Park Ave. South, New York, N.Y. 10016.

Beechhurst. Beechhurst Press. Order from Thomas Yoseloff, 11 E. 36th St., New York, N.Y. 10016.

Bell. G. Bell & Sons, York House, Portugal St., London, W.C.2, England.

Benjamin. W. A. Benjamin, 2700 Sand Hill Rd., Menlo Park, Calif. 94025.

Benn. Ernest Benn, Bouverie House, 154 Fleet St., London, E.C.4, England.

Bennett. Charles A. Bennett Co., 809 W. Detweiller Dr., Peoria, Ill. 61614.

Berkley. Berkley Publishing Corp., 200 Madison Ave., New York, N.Y. 10016.

Black. Adam & Charles Black, 4, 5, and 6 Soho Sq., London, W.1, England.

Blackie. Blackie & Son, Glasgow. Order from Interscience, unless otherwise stated.

Blackwell. Basil Blackwell & Mott, 49 Broad St., Oxford, England.

Blaisdell. Blaisdell Publishing Co., 275 Wyman St., Waltham, Mass. 02154.

Bogden. Bogden & Quigley, Publishers, 19 N. Broadway, Tarrytown, N.Y. 10591.

Book Centre. The Book Centre, N. Circular Rd., Neasden, London, N.W.10, England.

Book-Lab. Book-Lab, 1449 37th St., Brooklyn, N.Y. 11218.

British Book Service. British Book Service, Kingswood House, 1069 Broadview Ave., Toronto 6, Ont., Canada.

Brooks. Brooks Cole Publishing Co., 10 Davie Dr., Belmont, Calif. 94002.

Brown. William C. Brown Co., 135 S. Locust, Dubuque, Iowa 52001.

Bruce. Bruce Publishing Co., 400 N. Broadway, Milwaukee, Wis. 53201.

Burgess. Burgess Publishing Co., 426 S. Sixth St., Minneapolis, Minn. 55415.

CASMT. Central Association of Science and Mathematics Teachers, P.O. Box 246, Bloomington, Ind. 47401.

CEEB. College Entrance Examination Board, 475 Riverside Dr., New York, N.Y. 10027.

California. University of California Press, Berkeley, Calif. 94720.

Cambridge. Cambridge University Press, 32 E. 57th St., New York, N.Y. 10022.

Cambridge Book. Cambridge Book Co., subsidiary of Cowles Book Co., 488 Madison Ave., New York, N.Y. 10022.

Cassell. Cassell & Co., 35 Red Lion Sq., London, W.C.1, England.

Chanticleer. Chanticleer Press, 424 Madison Ave., New York, N.Y. 10017.

Chapman. Dresser, Chapman & Grimes, Box 243, Harvard Sq., Cambridge, Mass. 01438.

Chelsea. Chelsea Publishing Co., 159 E. Tremont Ave., Bronx, N.Y. 10453.

Chemical. Chemical Rubber Co., 2310 Superior Ave., Cleveland, Ohio 44114.

Chicago. University of Chicago Press, 5801 Ellis Ave., Chicago, Ill. 60637.

Christopher. Christopher Publishing House, 1140 Columbus Ave., Boston, Mass. 02120.

Citadel. Citadel Press, 222 Park Ave. South, New York, N.Y. 10003.

Clarendon. Clarendon Press. Order from Oxford.

Clearinghouse. International Clearinghouse, Science Teaching Center, University of Maryland, College Park, Md. 20742.

Colburn. John Colburn Associates, 1215 Washington Ave., Box 236, Wilmette, Ill. 60091.

Collier. Collier Books, 866 Third Ave., New York, N.Y. 10022.

Collins. William Collins Sons & Co., 215 Park Ave. South, New York, N.Y. 10003.

Columbia. Columbia University Press, 562 W. 113th St., New York, N.Y. 10027.

Commission. Commission on Mathematics, 425 W. 117th St., New York, N.Y. 10025.

Control. Control Data Institute, Division of Control Data Corporation, 3255 Hennepin Ave., Minneapolis, Minn. 55408.

Cornerstone. Cornerstone Library, 630 Fifth Ave., New York, N.Y. 10020.

Criterion. Criterion Books, 257 Park Ave. South, New York, N.Y. 10010.

Crofts. Appleton-Century-Crofts, 440 Park Ave. South, New York, N.Y. 10016.

Crowell. Crowell Collier & Macmillan, 866 Third Ave., New York, N.Y. 10022.

Crown. Crown Publishers, 419 Park Ave. South, New York, N.Y. 10016.

Day. John Day Co., 257 Park Ave. South, New York, N.Y. 10010.

Dell. Dell Publishing Co., 750 Third Ave., New York, N.Y. 10017.

Delmar. Delmar Publishers, Mountainview Ave., Albany, N.Y. 12205.

Dial. Dial Press, 750 Third Ave., New York, N.Y. 10017.

Dickenson. Dickenson Publishing Co., 16561 Ventura Blvd., Encino, Calif. 91316.

Dodd. Dodd, Mead & Co., 79 Madison Ave., New York, N.Y. 10016.

Doubleday. Doubleday & Co., 277 Park Ave., New York, N.Y. 10017.

Dover. Dover Publications, 180 Varick St., New York, N.Y. 10014.

Dryden. Order from Holt.

Duell. Duell, Sloane & Pearce. Order from Meredith.

Dutton. E. P. Dutton & Co., 201 Park Ave. South, New York, N.Y. 10003.

Educational. Educational Publishers, 1525 N. State Pkwy., Chicago, Ill. 60610.

Edwards. Edwards Brothers, 2500 S. State St., Ann Arbor, Mich. 48104.

Edwards, J. W. J. W. Edwards, 2500 S. State St., Ann Arbor, Mich. 48104.

Elsevier. American Elsevier Publishing Co., 52 Vanderbilt Ave., New York, N.Y. 10017.

Emerson. Emerson Books, 251 W. 19th St., New York, N.Y. 10011.

English. English Universities Press. Order from Macmillan.

Essential. Essential Books. Order from Oxford.

Evans. Evans Brothers, Montague House, Russell Sq., London, W.C.1, England.

Exposition. Exposition Press, 386 Park Ave. South, New York, N.Y. 10016.

Faber. Faber & Faber, 3 Queen Sq., London W.C.1, England.

Farrar. Farrar, Straus & Giroux, 19 Union Sq. West, New York, N.Y. 10003.

Fawcett. Fawcett World Library, 1 Astor Plaza, New York, N.Y. 10036.

Fearon. Fearon Publishers, 6 Davis Dr., Belmont, Calif. 94002.

Franklin. Franklin Teaching Aids, 847 N. East St., San Bernardino, Calif. 92410.

Frederick. The William-Frederick Press, 55 E. 86th St., New York, N.Y. 10028.

Free. Free Press, 866 Third Ave., New York, N.Y. 10022.

Freeman. W. H. Freeman & Co., 660 Market St., San Francisco, Calif. 94104.

Funk. Funk & Wagnalls, 53 E. 77th St., New York, N.Y. 10021.

GPO. Superintendent of Documents, Government Printing Office, Washington, D.C. 20401.

Galois. Galois Institute of Mathematics and Art, 624A Third St., Brooklyn, N.Y. 11215.

Garden. Garden City Books, Garden City, L.I., N.Y. 11530.

General Motors. General Motors Corp., Detroit, Mich. 48202.

Ginn. Ginn-Blaisdell, Xerox College Publishing, 275 Wyman St., Waltham, Mass. 02154.

Golden. Golden Press. Western Publishing Co., 1220 Mound Ave., Racine, Wis. 53404.

Golem. Golem Press, Box 1342, Boulder, Colo. 80302.

Gollancz. Victor Gollancz, 14 Henrietta St., Covent Garden, London, W.C.2, England.

Goodyear. Goodyear Publishing Co., 1515 Sunset Blvd., Pacific Palisades, Calif. 90272.

Gordon. Gordon & Breach, Science Publishers, 150 Fifth Ave., New York, N.Y. 10011.

Graphic. Graphic Center West, 2500 Marconi Ave., Sacramento, Calif. 95821.

Graylock. Graylock Press, 428 E. Preston St., Baltimore, Md. 21202.

Greenwood. Greenwood Press, 51 Riverside Ave., Westport, Conn. 06880.

Gresham. John Gresham, Ltd. Order from Robert Hale, Ltd., 63 Old Brompton Rd., London, S.W.7, England.

Grosset. Grosset & Dunlap, 51 Madison Ave., New York, N.Y. 10010.

Guggenheim. Solomon R. Guggenheim Foundation for the Museum of Non-Objective Painting, 120 Broadway, New York, N.Y. 10005.

Hafner. Hafner Publishing Co., 866 Third Ave., New York, N.Y. 10022.

Harcourt. Harcourt, Brace Jovanovich, 757 Third Ave., New York, N.Y. 10017.

Harper. Harper & Row, 49 E. 33d St., New York, N.Y. 10016.

Harrap. George G. Harrap & Co., 182 High Holborn, London, W.C.1, England.

Hart. Hart Publishing Co., 719 Broadway, New York, N.Y. 10003.

Harvard. Harvard University Press, 79 Garden St., Cambridge, Mass. 02138.

Harvey. Harvey House, Irvington-on-Hudson, N.Y. 10533.

Hawthorn. Hawthorn Books, 70 Fifth Ave., New York, N.Y. 10011.

Hayden. Hayden Book Co., 116 W. 14th St., New York, N.Y. 10011.

Heath. D. C. Heath & Co., 125 Spring St., Lexington, Mass. 02173.

Heinemann. Heinemann Educational Books, 48 Charles St., London, W1X, England.

Herder. Herder & Herder, 232 Madison Ave., New York, N.Y. 10016.

Her Majesty. Her Majesty's Stationery Office, London, England.

Hill. Hill & Wang, 72 Fifth Ave., New York, N.Y. 10011.

Hobbs. Hobbs, Doorman & Co., 441 Lexington Ave., New York, N.Y. 10017.

Holden. Holden-Day, 500 Sansome St., San Francisco, Calif. 94111.

Holiday. Holiday House, 18 E. 56th St., New York, N.Y. 10022.

Holt. Holt, Rinehart & Winston, 383 Madison Ave., New York, N.Y. 10017.

Hopkins. Johns Hopkins Press, Baltimore, Md. 21218.

Houghton. Houghton Mifflin Co., 2 Park St., Boston, Mass. 02107.

Humanities. Humanities Press, 303 Park Ave. South, New York, N.Y. 10010.

Hutchinson. Hutchinson & Co., 178-202 Great Portland St., London, W.1, England.

IIT. Illinois Institute of Technology, 3300 S. Federal, Chicago, Ill. 60616.

Illinois. College of Engineering, University of Illinois, Urbana, Ill. 61801.

Indiana. Indiana University Press, Tenth and Morton Sts., Bloomington, Ind. 47401.

Industrial. Industrial Press, 200 Madison Ave., New York, N.Y. 10022.

International. International Textbook Co., Scranton, Pa. 18515.

International Publications. International Publications Service, 303 Park Ave. South, New York, N.Y. 10010.

Interscience. Interscience Publishers, 605 Third Ave., New York, N.Y. 10016.

Iowa. Iowa State University Press, Press Bldg., Ames, Iowa 50010.

Judd. Orange Judd Publishing Co., 15 E. 26th St., New York, N.Y. 10010.

Knopf. Alfred A. Knopf, 201 E. 50th St., New York, N.Y. 10022.

Lafayette. Lafayette Printing Co., Lafayette, Ind.

LaRue. Thomas De LaRue & Co., 84-86 Regent St., London, W.1, England.

Lea. Lea & Febiger, 600 S. Washington Sq., Philadelphia, Pa. 19106.

Lippincott. J. B. Lippincott Co., E. Washington Sq., Philadelphia, Pa. 19105.

Little. Little, Brown & Co., 34 Beacon St., Boston, Mass. 02106.

Littlefield. Littlefield, Adams & Co., 81 Adams Dr., Totowa, N.J. 07512.

London. University of London Press. Order from British Book Centre, 122 E. 55th St., New York, N.Y. 10022.

Longmans. Longmans Green & Co. Order from David McKay Co., 750 Third Ave., New York, N.Y. 10017.

Lothrop. Lothrop, Lee & Shepard, 105 Madison Ave., New York, N.Y. 10016.

MAA. Mathematical Association of America, State University of New York at Buffalo, Buffalo, N.Y. 14214.

Macdonald. Macdonald & Co. Order from Purnell & Sons, Paulton, Nr. Bristol, England.

Macfadden. Macfadden-Bartell Corp., 205 E. 42nd St., New York, N.Y. 10017.

McGraw. McGraw-Hill Book Co., 330 W. 42nd St., New York, N.Y. 10036.

Macmillan. Macmillan Co., 866 Third Ave., New York, N.Y. 10022.

Manas. Manas Press, 4513 Potomac Ave., N.W., Washington, D.C. 20007.

Mentor. Mentor Books. Order from New American.

Mentzer. Mentzer, Bush & Co., 333 E. Cermak Rd., Chicago, Ill. 60606.

Meredith. Meredith Corp., 1716 Locust St., Des Moines, Iowa 50303.

Meridian. Meridian Books, c/o World Publishing Co., 2231 W. 110th St., Cleveland, Ohio 44102.

Merrill. Charles E. Merrill Books, 1300 Alum Creek Dr., Columbus, Ohio 43216.

Messner. Julian Messner, 1 W. 39th St., New York, N.Y. 10018.

Methuen. Methuen & Co. Order from Book Centre.

Michigan. University of Michigan Press, 615 E. University Ave., Ann Arbor, Mich. 48104.

Minnesota. University of Minnesota Press, 2037 University Ave., S.E., Minneapolis, Minn. 55455.

MIT. M.I.T. Press, 50 Ames St., Room 741, Cambridge, Mass. 02142.

Mohler. Mohler Printing Co., Berea, Ohio 44017.

Morrow. William Morrow & Co., 105 Madison Ave., New York, N.Y. 10016.

Mosby. C. V. Mosby Co., 3207 Washington Blvd., St. Louis, Mo. 63103.

Mu Alpha Theta. Mu Alpha Theta, The University of Oklahoma, Norman, Okla. 73069.

Murray. John Murray, 65 Clerkenwell Rd., London, E.C.1, England.

Museum. Museum of Science and Industry, E. 57th St. and South Shore Dr., Chicago, Ill. 60637.

NCTM. National Council of Teachers of Mathematics, 1906 Association Dr., Reston, Va. 22091.

Nebraska. University of Nebraska Press, Lincoln, Neb. 68508.

Nelson. Thomas Nelson, Copewood and Davis Sts., Camden, N.J. 08103.

New American. New American Library, 1301 Avenue of the Americas, New York, N.Y. 10019.

Newnes. George Newnes, Tower House, 8-11 Southampton St., Strand, London, W.C.2, England.

Newson. Order from Harcourt.

Noordhoff. P. Noordhoff, Groningen, Netherlands. Order from Stechert.

Norton. W. W. Norton & Co., 55 Fifth Ave., New York, N.Y. 10003.

Notre Dame. University of Notre Dame Press, Notre Dame, Ind. 46556.

NSF. National Science Foundation Institute, 1951 Constitution Ave., N.W., Washington, D.C. 20025.

NYU. New York University Press, 32 Washington Pl., New York, N.Y. 10003.

OEEC. Organisation for European Economic Cooperation. Now Organisation for Economic Cooperation and Development, Paris. Order from McGraw.

Oldbourne. Oldbourne Book Co., 1-5 Portpool La., Gray's Inn Rd., London, E.C.1, England.

Oliver. Oliver & Boyd, 39A Welbeck St., London, W.1, England.

Open. Open Court Publishing Co., 1039 Eighth St., La Salle, Ill. 61301.

Orthonia. Order from Harcourt.

Oxford. Oxford University Press, 200 Madison Ave., New York, N.Y. 10016.

Pacific. Pacific Books, Box 558, Palo Alto, Calif. 94302.

Page. L. C. Page & Co., 19 Union Sq. West, New York, N.Y. 10003.

Pantheon. Pantheon Books, 201 E. 50th St., New York, N.Y. 10022.

Parker. Parker Publishing Co., 1 Village Sq., West Nyack, N.Y. 10994.

Pauper. Peter Pauper Press, 629 N. McQuesten Pkwy., Mt. Vernon, N.Y. 10552.

Pelican. Pelican Books. Order from Penguin.

Penguin. Penguin Books, 7110 Ambassador Rd., Baltimore, Md. 21207.

Pergamon. Pergamon Press, Maxwell House, Fairview Park, Elmsford, N.Y. 10523.

Phillips. S.G. Phillips, 305 W. 86th St., New York, N.Y. 10024.

Philosophical. Philosophical Library, 15 E. 40th St., New York, N.Y. 10017.

Pitman. Pitman Publishing Corp., 6 E. 43d St., New York, N.Y. 10017.

Plenum. Plenum Publishing Corp., 227 W. 17th St., New York, N.Y. 10011.

Pocket. Pocket Books, 630 Fifth Ave., New York, N.Y. 10020.

Pollak. Pollak Foundation for Economic Research, Jaffrey, N.H. 03452.

Praeger. Praeger Publishers, 111 Fourth Ave., New York, N.Y. 10003.

Prentice. Prentice-Hall, Englewood Cliffs, N.J. 07632.

Princeton. Princeton University Press, Princeton, N.J. 08540.

Prindle. Prindle, Weber & Schmidt, 53 State St., Boston, Mass. 02109.

Public Affairs. Public Affairs Press, 419 New Jersey Ave., SE, Washington, D.C. 20003.

Putnam. G.P. Putnam's Sons, 200 Madison Ave., New York, N.Y. 10016.

Rand. Rand McNally & Co., Box 7600, Chicago, Ill. 60680.

Random. Random House, 201 E. 50th St., New York, N.Y. 10022.

Reidell. D. Reidell Publishing Co., P.O. Box 17, Dordrecht, Holland.

Reinhold. Van Nostrand Reinhold Co., 450 W. 33rd St., New York, N.Y. 10001.

Rider. Rider & Co., 178-202 Great Portland St., London, W.1, England.

Rider, J. F. John F. Rider, 116 W. 14th St., New York, N.Y. 10011.

Rigby. Order from Tri-Ocean Books, 62 Townsend St., San Francisco, Calif. 94107.

Ronald. Ronald Press Co., 79 Madison Ave., New York, N.Y. 10016.

Routledge. Routledge & Kegan Paul, 9 Park St., Boston, Mass. 02108.

Rowe. H. M. Rowe Co., 624 N. Gilmor St., Baltimore, Md. 21217.

Russell. Russell & Russell Publishers, 122 E. 42d St., New York, N.Y. 10017.

Sams. Howard W. Sams & Co., 4300 W. 62d St., Indianapolis, Ind. 46268.

SMSG. School Mathematics Study Group, School of Education, Cedar Hall, Stanford University, Stanford, Calif. 94305. Distributed by Vroman and Singer.

Sanborn. Order from Singer.

Saunders. W. B. Saunders Co., W. Washington Sq., Philadelphia, Pa. 19105.

Science. Science Press, Ephrata, Pa. 17522.

Scott. Scott, Foresman & Co., 1900 E. Lake Ave., Glenview, Ill. 60025.

Scribner. Charles Scribner's Sons, 597 Fifth Ave., New York, N.Y. 10017.

Scripta. Scripta Mathematica, Amsterdam Ave. and 186th St., New York, N.Y. 10033.

Sheed. Sheed & Ward, 64 University Pl., New York, N.Y. 10003.

Shoe String. Shoe String Press, 995 Sherman Ave., Hamden, Conn. 06514.

Silver. Silver Burdett Co., 250 James St., Morristown, N.J. 07960.

Simon. Simon & Schuster, 630 Fifth Ave., New York, N.Y. 10020.

Singer. Random House/Singer School Div., 201 E. 50th St., New York, N.Y. 10022.

Smith. Peter Smith, 6 Lexington Ave., Magnolia, Mass. 01930.

Smith-Elder. Smith, Elder & Co., London, England.

South-Western. South-Western Publishing Co., 5101 Madison Rd., Cincinnati, Ohio 45227.

Spartan. Spartan Books, 432 Park Ave. South, New York, N.Y. 10016.

Springer. Springer-Verlag New York, 175 Fifth Ave., New York, N.Y. 10010.

SRA. Science Research Associates, 259 E. Erie St., Chicago, Ill. 60611.

Standards. National Bureau of Standards, United States Department of Commerce, Washington, D.C. 20025.

Stechert. Stechert-Hafner, 31 E. Tenth St., New York, N.Y. 10003.

Steck. Steck-Vaughn Co., Box 2028, Austin, Tex. 78767.

Stein. Stein & Day Publishers, 7 E. 48th St., New York, N.Y. 10017.

Sterling. Sterling Publishing Co., 419 Park Ave. South, New York, N.Y. 10016.

St. Martin's. St. Martin's Press, 175 Fifth Ave., New York, N.Y. 10010.

Swan. Swan Sonnenschein, London, England.

Taylor. Taylor & Francis. Order from Wm. Dawson Subscription Service, 6 Thorncliffe Park Dr., Toronto 17, Ont., Canada.

Teachers. Teachers College Press, Teachers College, Columbia University, 1234 Amsterdam Ave., New York, N.Y. 10027.

Teachers Practical Press. Order from Prentice.

Thames. Thames & Hudson, 30 Bloomsbury St., London, W.C.1, England.

Thomas. Charles C. Thomas, 301 E. Lawrence Ave., Springfield, Ill. 62703.

Time. Time-Life Books, Life Bldg., Chicago, Ill. 60611.

Toronto. University of Toronto Press, Front Campus, University of Toronto, Toronto 5, Ont., Canada.

Tuttle. Charles E. Tuttle Co., Tokyo, Japan, and 28 S. Main St., Rutland, Vt. 05701.

Ulrich. Ulrich's Bookstore, 547 E. University Ave., Ann Arbor, Mich. 48104.

Ungar. Frederick Ungar Publishing Co., 250 Park Ave. South, New York, N.Y. 10003.

Unipub. Unipub, P.O. Box 433, New York, N.Y. 10016.

Universal. Universal Book and Stationery Co., Delhi 6, India.

Vanguard. Vanguard Press, 424 Madison Ave., New York, N.Y. 10017.

Van Nostrand. Van Nostrand Reinhold Co., 450 W. 33d St., New York, N.Y. 10001.

Vantage. Vantage Press, 120 W. 31st St., New York, N.Y. 10001.

Viking. Viking Press, 625 Madison Ave., New York, N.Y. 10022.

Vintage. Vintage Books. Order from Random.

Vroman. A. C. Vroman, 2085 E. Foothill Blvd., Pasadena, Calif. 91109.

Wadsworth. Wadsworth Publishing Co., Belmont, Calif. 94002.

Walch. J. Weston Walch, Box 1075, Portland, Maine 04104.

Walck. Henry Z. Walck, 19 Union Sq. West, New York, N.Y. 10003.

Waldorf. Waldorf School Monographs, 25 Pershing Rd., Englewood, N.J. 07631.

Walker. Walker & Co., 720 Fifth Ave., New York, N.Y. 10019.

Washington. Washington Square Press, 630 Fifth Ave., New York, N.Y. 10020.

Watts. Franklin Watts, 845 Third Ave., New York, N.Y. 10022.

Watts, C.A. C.A. Watts & Co. Order from Book Centre.

Webster. Webster Division, McGraw-Hill Book Co., 340 W. 42nd St., New York, N.Y. 10036.

Wehman. Wehman Bros., 712 Broadway, New York, N.Y. 10003.

Westinghouse. Westinghouse Learning Corporation, 100 Park Ave., New York, N.Y. 10017.

Weybright. Weybright and Talley, 750 Third Ave., New York, N.Y. 10017.

Whitman. Albert Whitman & Co., 560 W. Lake St., Chicago, Ill. 60606.

Whittlesey. Whittlesey House. Order from McGraw.

Wiley. John Wiley & Sons, 605 Third Ave., New York, N.Y. 10016.

Williams. Williams & Wilkins Co., 428 E. Preston St., Baltimore, Md. 21202.

Wilson. H.W. Wilson Co., 950 University Ave., Bronx, N.Y. 10452.

Wise. Wm. H. Wise & Co., 336 Mountain Rd., Union City, N.J. 07087.

Wonder. Wonder Books. Order from Grosset.

World. World Publishing Co., 110 E. 59th St., New York, N.Y. 10022.

World Book. Order from Harcourt.

World University. World University Library, McGraw-Hill Book Co., 330 W. 42nd St., New York, N.Y. 10036.

Worth. Worth Publishing Co., 70 Fifth Ave., New York, N.Y. 10011.

Yale. Yale University Press, 149 York St., New Haven, Conn. 06511.

Ziff. Ziff-Davis Publishing Co. Order from Barnes.